SPECIAL ANNUAL AWARDS ISSUE!

PC Computing

DECEMBER 1994

The **Most Valuable Hardware** and **Software**

Best Products of the Year

Got the **right** tool for the job? Check our list of the **115** hardest-working hardware and software **bargains.**

NICKELODEON HAS BECOME THE BIGGEST KID ON THE BLOCK.

WITH A LITTLE NURTURING

Ever seen a big glob of Green Slime™ oozing down a kid's face? Then you've seen Nickelodeon® in action. And their business development wizard, Matthew Goldstein (the one wearing pants). His mission is to spread the hip, irreverent, "for kids only" Nickelodeon brand into every new market he can find. From developing Nickelodeon-inspired toys like Green Slime, to spawning international syndication, *Nickelodeon Magazine*, home video and movie deals. That means a lot of meetings for Matthew. A lot of presentations. Naturally he relies on Microsoft® Office to help him put it all together. "Everything is all linked. It's all one. And it just makes life so easy," says Matthew. "It makes an unbelievable difference in my work." We call this phenomenon OfficeLinks. And it means that sharing things like words, numbers and graphics is, well, child's play. Matthew can create an audience demographic chart in Microsoft Excel, then just drag that chart across the screen into his Word report and drop it in. Viola! Instant linkage. Matthew thinks it's incredible. "I love the fact that I can

NICKEL

Microsoft Office helped Nickelodeon move into over 70 countries.

Microsoft Office Professional, shown here, includes Microsoft Excel, Word, PowerPoint®, Microsoft Access® as well as a Mail workstation license (server and software must be acquired separately). *Support for Microsoft Office is no-charge.
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FROM MICROSOFT OFFICE.

make a link that really works and that's dynamic." And as he works, our exclusive IntelliSense™ technology tracks his progress, then finds ways to make the tougher jobs easier and the easier jobs outright automatic. For instance, Word can correct Matthew's most common typos automatically. It's almost (dare we say?) fun. "Building presentations is 100% easier," Matthew claims. "People at work come in and say, 'What are you using there?' It's amazing. And it's no big deal because it takes no time." So Matthew and his business development presentation, "Nickelodeon 101," are a big smash wherever they go. Just like Microsoft Office. This leading family of business software keeps getting more and more popular. With people like Matthew. And with companies both large and small all over the world. And to make sure it stays that way, we offer the only unlimited support* with no service charge for a product of this kind. So call (800) 240-4782, Department 4GG, for our free Office Information Kit.** With Microsoft Office, you'll see how your business could enjoy a growth spurt of its own.

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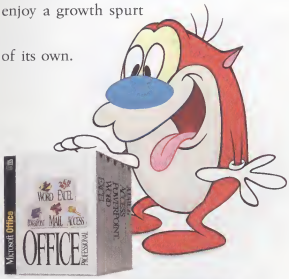

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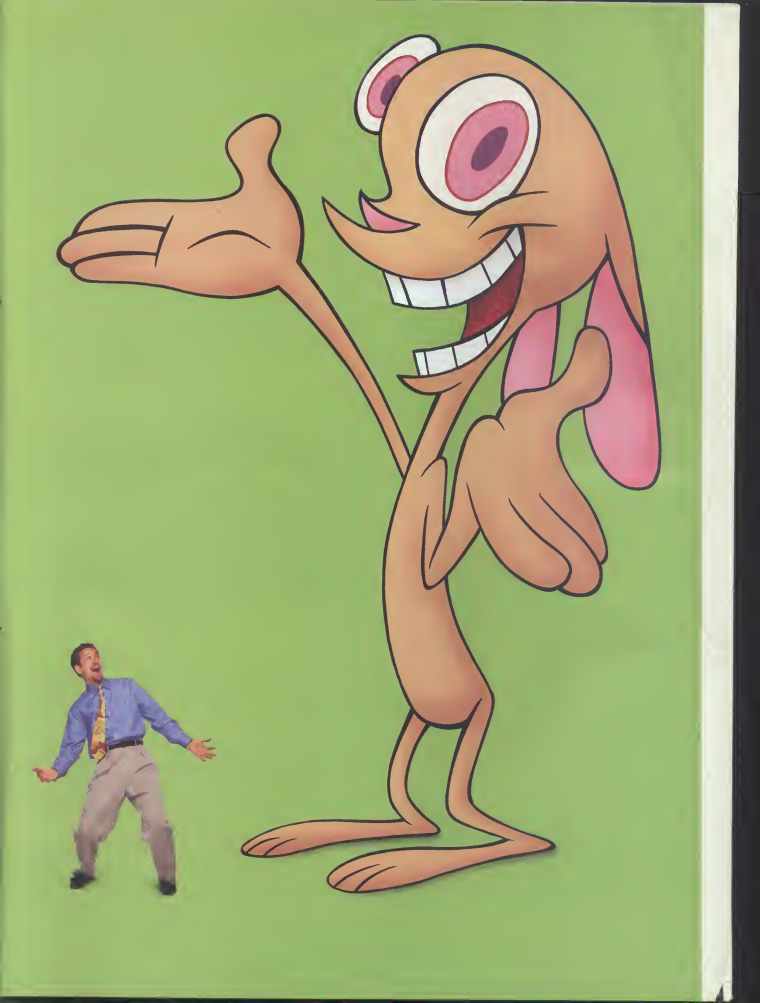

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intel inside

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BEST Products

Which computer and software products are best? The ones that truly solve your problems. Here's our annual salute to the hardest-working, productivity-boosting, time-saving tools that will help you get the job done easier, better, and faster than ever before. We auditioned a huge cast of showstopping products, but only the stars made the final cut. Read on as we applaud the winners. **124**

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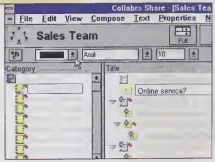

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Sports car modeled in AutoCAD with AutoSurf. Car and scene (image) rendered in AutoVision by Yann Bertaud of Autodesk Marketing Support. All images composited in Adobe PhotoShop.

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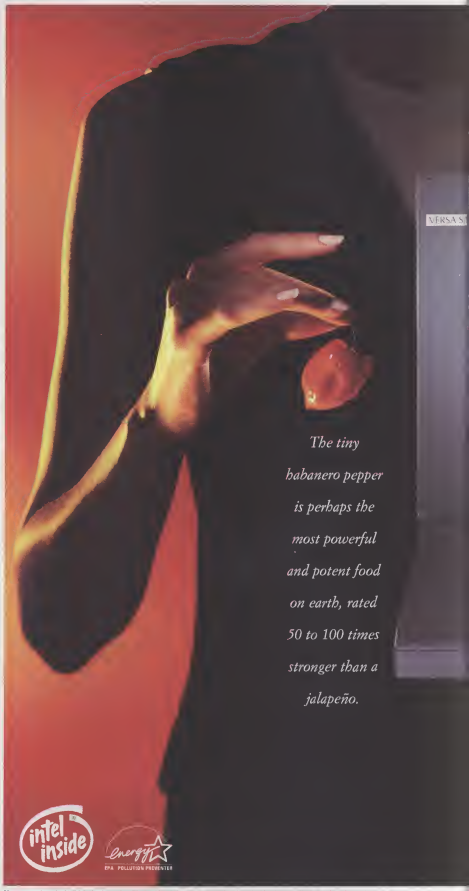

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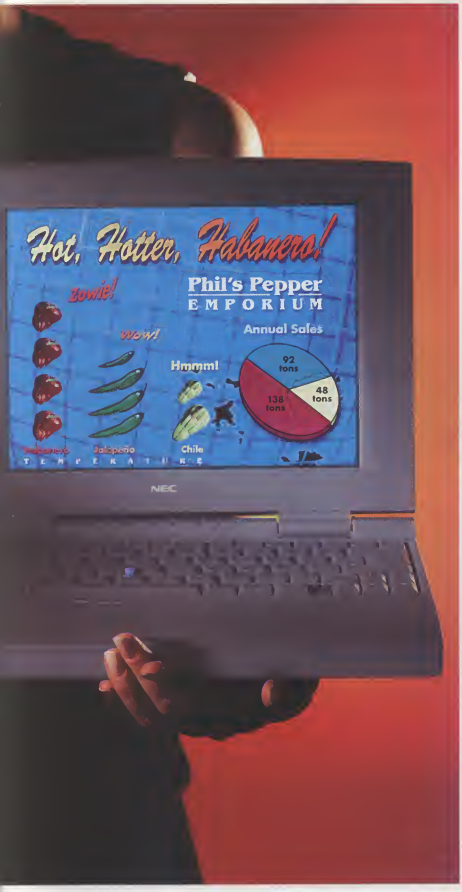

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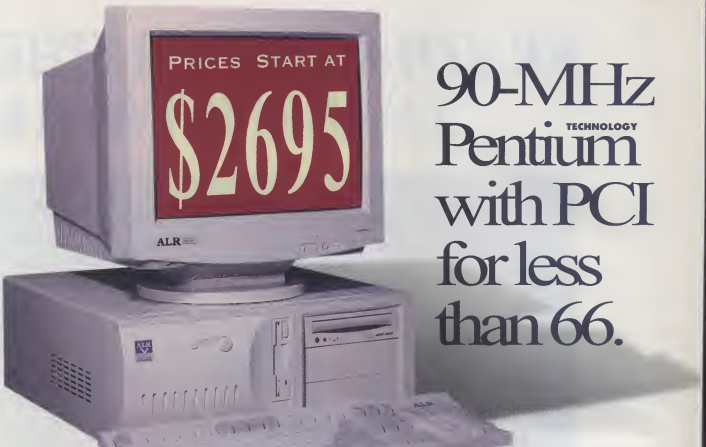

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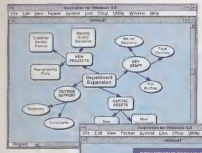

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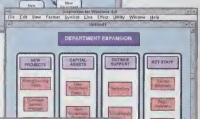

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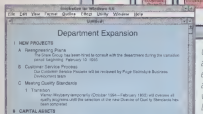

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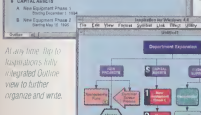

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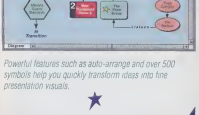

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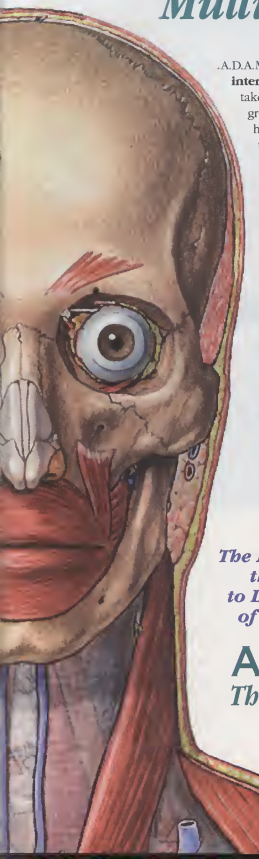

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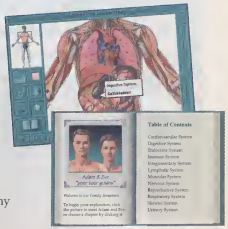

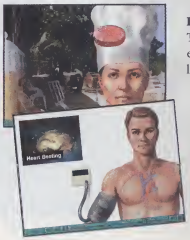

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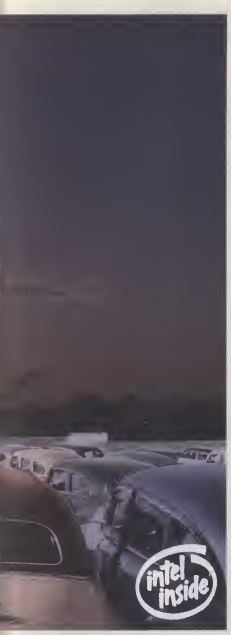

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LAURENCE F. HAEMER
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Ghostware of Spirits Present

It seems that much of the October issue is devoted to Phantom-ware. Windows 95 may be the future of computing, but we need to use our computers in the present. Microsoft's MS-DOS 6.22 has not even been mentioned in your pages. The question your readers are asking is "What is happening today in the computer industry?" not "What will things be like in the future?"

DAVID WEST
WEST_D@CC.DIXIE.EDU

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Futureguide

Every year I look forward to the special issue devoted to Windows. In the past, your Superguide issue has become a real "keeper." I still refer to back issues, and they never fail me. This year (October, page 101) looked like no exception, but the amount of space devoted to Windows 95 is disgusting. Why do I want to know what something that might be released next year will be like?

RICHARD ENGEL
RENGEL@EARTH.EXECPC.COM

FOR BETTER OR WORSE, Windows 95 will cause the biggest shake-up on your desktop in 1995. The more you know now, the better you can plan your time, dollars, and resources to make the upgrade work for you—rather than against you. **JZ**

Painting the Windy City

I just read your Windows Superguide and I was surprised to see your reference to the new paint program included in Microsoft's Windows 95. Of course it saves only BMP files—it's a beta program. By the time Windows 95 ships, it will save at least as many formats as Windows 3.1's PaintBrush. This is obvious to anyone except the authors of the article.

MORGAN FREW
MORGANFREW@AOL.COM

OBVIOUSLY YOUR CRYSTAL BALL is working better than ours. Any idea when Windows 95 will ship? **JM**

E-Praise

Gil Schwartz's commentary on "E-fective Mail" (October, page 49) really hits it on the head! As a WAN administrator and cc:Mail administrator for 600 users, I find that e-mail is often the wrong medium to convey a person's intent or concerns.

RICK SACKETT
CIS: 75151,1353

Where the Blips Fall

Your Radar ("Pulse," September, page 31) seems to have been jammed by Microsoft's media hype. Windows 3.1 was supposed to be the Windows that didn't crash—then Windows NT, now NT 3.5? Of course NT 3.5 doesn't crash, it doesn't exist yet.

You think OpenDoc is too little, too late? It blows away OLE in terms of performance, and it's supported by everyone (except Microsoft).

And you say that TrueType is where it's at? Ha! If that's the future, we might as well start carving rock walls, too. When will the media stop believing everything that Microsoft's propaganda department keeps spewing?

J. TORUNSK
JTORUNSK@HPB.HWC.CA

WE CALL 'EM AS WE SEE 'EM. We have Windows NT 3.5 in our labs, and the *beta* is more stable than NT 3.1. OpenDoc vs. OLE? Show me a Windows application that supports OpenDoc today, and then let's talk. As far as PostScript, when color laser printers enter the mainstream, it may turn around; but for black-and-white printing or low-cost, color ink jets, PostScript adds too much cost to the printer and doesn't give enough back in return. **RN**

Devil Made 'Em Do It

How sad to see morally bankrupt blackhearts rationalize their writing of viruses as the fault of innocent PC users ("Virus, They Wrote," September, page 207). Their work corrodes and corrupts a technology that society should be better for. It insinuates itself into trust—the very fabric of our progress. These terrorist ways have secured a place in my life through virus scans and a sometimes irrational avoidance of online services.

On their day of judgment, here's hoping that virus writers have the same success securing a place in hell.

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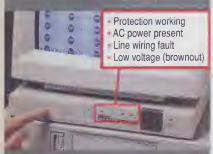

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  - AC power present
  - Line wiring fault
  - Low voltage (brownout)
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Sample Yours Today!
Call (312) 755-8741
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Chicago, IL 60610
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Fax: 312/644-6505
FaxBack: 312/755-5420

Circle 240 on reader service card.

Mail BY PHONE, FAX, NET & POST: Race to Obsolescence • Fiery Flaming Feud

Media Coverage Is a Virus

I don't appreciate your article on *virogens*. Instead of trying to inform the computer community intelligently, you encourage alarm, panic, and paranoia. This kind of stuff makes the "computer underground" purposefully unhelpful to reporters.

ELI JACKSON
ELIO@CYBERSPACE.COM

WHEN IT COMES to protecting valuable data, a little healthy paranoia never hurt anyone. In fact, the virogens went out of their way to be helpful to our reporter—they don't differentiate between fame and infamy. **HB**

The New Math

In "Best Little Subnote We've Tested" (New! September, page 62), three 5-star ratings add up to a verdict with a 4-star rating. And on page 84, one 4-star and one 3-star rating lead to a 4.5-star rating. I believe a wee bit of consistency is in order—or, if *Verdict* has other criteria, please print it.

GUS HALLGREN
GREEN VALLEY, ARIZONA

RATHER THAN COMPILE redundant and useless averages, the verdict scores take into account not only the performance, usability, and technology scores, but price and overall value. **RN**

Flame On

I just picked up the October issue and was amazed to see some of the flame mail and opinionated, egotistical displays that we have too much of on the commercial services and the Internet. People are entitled to opinions, but I don't buy your magazine to hear from them. Think about renaming your Mail column "Beavis and Butt-Head Find Our E-Mail Address." One last thing: Please withhold my e-mail address. I don't need a lot of flame mail.

JOHN CLAVIN
ADDRESS WITHHELD BY REQUEST

The Privileged Few

Well, what a dilemma! Give up on *PC Computing* because it is full of more and more Windows junk, or stick around and complain about it so I can irritate readers like George Prevelige (Mail, October, page 23)? Not all of us are about to race out every six months and buy the latest gadget du jour. Nor do we want to have eternal car payments on the latest iron sitting in our driveways. If I can get 10 years on a Ford Pinto and 14 on a Toyota pickup, I can probably do the same with a 286.

BILL AULL
COMPUSERVE 70575,316

GEORGE OBVIOUSLY HIT A NERVE with his letter, which suggests that the DOS market cuts into the development of Windows apps. We received loads of responses. Racing to buy the latest and greatest products may not be too feasible, but neither is comparing the longevity of a good car to a 286. **JOC**

Ad Hoc Ad Jock

While "Prohibiting porn merchants from appearing in your magazine does not constitute censorship," (Mail, October, page 29), the response to your ads *does* constitute a vivid example of the metastatic horror of the long arm of the politically correct. Censorship manifests itself not only in blatant First Amendment challenges, but in subtle (and therefore, more dangerous), attacks on the right to free speech. If you don't like the ads, folks, don't read them. One can only wonder why these whining voices of repression continue to leap from *porno* to *pederasty*, Pentium or otherwise.

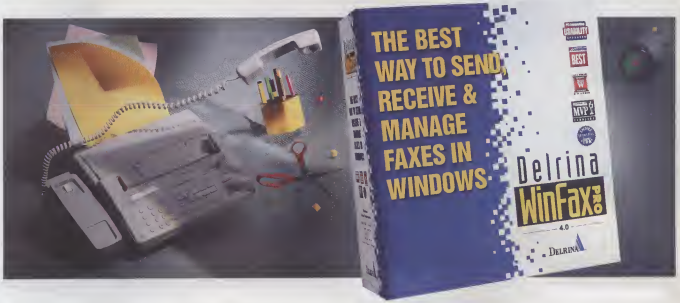
ROSALIND ROLAND
CIS: 73444,2623

Avert Your Eyes!

It had to happen. The prudes and the politically correct have surfaced in the Mail column. Please, people: If the ads for explicit material offend you, don't read them! Frankly, I find much more offensive the ads that are on different-sized paper and the innumerable subscription postcards that fall out and litter the floor like wood-pulp dandruff. *PC Computing*, stand to your guns! If it helps lower the cost of the magazine to subscribers, keep taking the adult ads. You won't lose my subscription by keeping them in.

ROSS E. SCHACHER
CIS: 72204,1172

Introducing Delrina WinFax PRO™ 4.0. You'll wonder how you ever faxed without it.



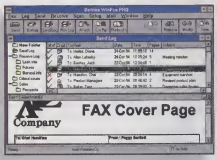
Meet the fastest, easiest, most convenient way ever to handle all your faxing – new Delrina WinFax PRO™ 4.0, the latest version of the best-selling fax software in the world. The only one that combines the advanced faxing features you need with astonishing new ease and usability.

"The best fax package there is."

That's what *PC/Computing* said about version 3.0. And now we've made it even better.

Starting with the revolutionary new streamlined interface that makes it simpler than ever to do anything you'd do with a fax machine, and a lot more. Like sending faxes directly from within any Windows application as easily as you'd print. Or organizing sent and received faxes in convenient folders. Or converting faxes into word processing documents with OCR.

There's added convenience with dozens of ready-to-use cover pages. Fax phonebooks that are drag-and-drop simple. And improved fax annotation tools that even let you add your signature.



Based on extensive usability testing, the new customizable interface includes folders for organizing sent and received faxes.

Don't try this with a fax machine.

Imagine faxing, not just an image of a document, but the actual file itself*, so it's ready to be used in an application. Imagine sending a single document that is automatically faxed to some people and e-mailed to others.

Now imagine you're on the road, and WinFax PRO automatically forwards faxes to you. Or lets you retrieve faxes sent to your regular fax number*. And there's more.

Get new Delrina WinFax PRO 4.0 today and put faxing where it really belongs – on your PC. Call now for information or to upgrade from WinFax PRO or WinFax LITE™. Or see your local dealer to upgrade immediately.

DELRINA
1-800-268-6082

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*Requires Class 1 modem

Circle 167 on reader service card.

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The Award Winning Graphics and Publishing Team!

WINNER OF OVER 150 FIRST PLACE AWARDS!

Ideal Entry-Level Graphics

CorelDRAW 3 is so easy to use! With precision type control, amazing special effects and powerful illustration tools, CorelDRAW 3 is the ideal entry-level graphics package. CorelDRAW 3 includes CorelCHART, Corel PHOTO-PAINT, CorelSHOW, CorelTRACE and Corel MOSAIC.

- **250 fonts**
- **14,000 Clipart** Images & Symbols

$149* CD-ROM VERSION

Hot News! CorelDRAW 4 wins Editor's Choice and Usability Award. PC Magazine, UK July 1994

Powerhouse Graphics

CorelDRAW 4 is the complete graphics solution. With all the power and modules of CorelDRAW 3, CorelDRAW 4 also includes dozens of new artistic and technical enhancements, an object-orientated animation module, OCR capabilities and multi-page layout.

- **750 fonts**
- **18,000 Clipart** Images & Symbols

$395* CD-ROM VERSION

Complete Graphics & Publishing Solution

CorelDRAW 5 combines the graphics power of CorelDRAW and the advanced publishing capabilities of Corel VENTURA 5 within an integrated user interface. CorelDRAW 5 has all the modules of CorelDRAW 4 plus a revolutionary color management system, major gains in speed and performance, and hundreds of improvements.

- **825 fonts**
- **22,000 Clipart** Images & Symbols

$695* CD-ROM VERSION

BEST BUY®

Great Prices. No Pressure.
Dealer may sell for less.

Enter the Corel $2,000,000 World Design Contest and win! (September to March) To receive a free copy of the contest rules and an entry form please call: 1-613-728-0826 ext. 3080, Document #1004. To leave a message please dial: 1-613-728-0826 ext. 81609.

COREL
1-613-728-3733

Circle 180 on reader service card.

The Sounds of Righteousness

Paul Somerson knew when he wrote his September column, "Star System" (page 47), that he would raise the worst ire of the censor-freaks. Criticizing their position precipitates an exponential rise in rabidity, far worse than the presence of the material they oppose. I salute his bravery. While I realize that *PC Computing* is not primarily intended to be a vehicle for social change, my fervent wish is that you will continue to pursue diverse thought.

RICHARD D. COOK
74756.743@COMPUSERVE.COM

Penn Palls

I want to let you know why I will not renew my subscription to *PC Computing*. Penn Jillette's columns have taken the Lord's name in vain, not once but twice. I will not allow anyone working for me to have this magazine with them while on the premises.

PAUL SMITH
NEWTON, NORTH CAROLINA

Ginsu Printer?

I have been waiting a long time for a combination machine that will print, fax, copy, scan, etc. Now there are at least a couple on the market. How do they compare to their single-function competitors?

ROBERT F. MAHEU
NICEVILLE, FLORIDA

CHECK OUT our review of Hewlett-Packard's OfficeJet on page 83. **JOC**

Patently Absurd

Your Toolkit article "Do-It-Yourself Windows Insight and Rebirth," (October, page 222) scratches the surface of patent stupidity. I had a long telephone discussion with a patent examiner, who told me that the average examiner handles 1,500 patent applications each year—about 6 per workday. He also told me that patent examiners must rely on the research and honesty of the person making the application. If the applicant is sloppy with research or dishonest, there is only a small chance that the examiner will catch the problem.

In other words, anyone can receive a patent on almost anything. You can correct the problem only if you pay $2,250 and have the patent re-examined, or you can fight in court where the deepest pockets almost always win. Maybe there are legislators who read *PC Computing* and will form a committee to look into the matter and eventually throw more money recklessly into a system littered with incompetence to create even a greater level of inane patent laws.

FENTON J. DEAN
CIS: 75023,105

Perjury Jury

Now that a representative of the FDA has complained publicly about you giving away computer secrets such as changing a file's archive functions (hitherto known only to very hardened computer literates), how about curbing your treacherous reporting a bit, huh? Not only do you reveal how to delete files using the cryptic DEL function, but also how to print a drive's directory using both the PRINT and DIR commands in a certain combination on the same command line! Furthermore, you point out how to create entire subdirectories from scratch with yet another few clandestine strokes of the keys! May I ask what possible good these commands can bring to the honest user?

Let me express the sincere hope that before you publish more irresponsible letters by nerdy FDA bureaucrats, please keep in mind that this particular employee has only recently switched from CP/M and is still having a very hard time remembering how to turn on his computer and monitor at the same time.

THILO T. NEWMAN
NASHVILLE, TENNESSEE

SEND YOUR THOUGHTS TO Mail, *PC Computing*, 950 Tower Lane, 19th Floor, Foster City, CA 94404; fax us at (415) 578-7029; contact us via the Internet (72241.2451@compuserve.com) or CompuServe (72241,2451); or log on to PC Contact to post a public message (see page 284 for instructions). Letters must be signed and include a daytime phone number. If you contact us through e-mail, please include your phone number, city, state, and authorization to print your e-mail address. All letters become the property of *PC Computing* and will be edited for length and clarity. For technical questions, please send e-mail to CompuServe 76000,21.

You can't sleep. You can't call room service. At least now you can get all your faxes.

Now you can get all your faxes whenever and wherever you travel. When someone wants to send you a fax, they simply send it to your Delrina Fax MailBox™ — using your own personal 800 fax number which we provide.

To instantly retrieve faxes with a PC or laptop simply use Delrina WinFax PRO™ 4.0 and a fax modem. Or just call your 800 number and enter your password to receive them via fax machine. If you have a pager, we'll notify you the instant you get a fax. Order today and get one free month, plus ten free pages!*

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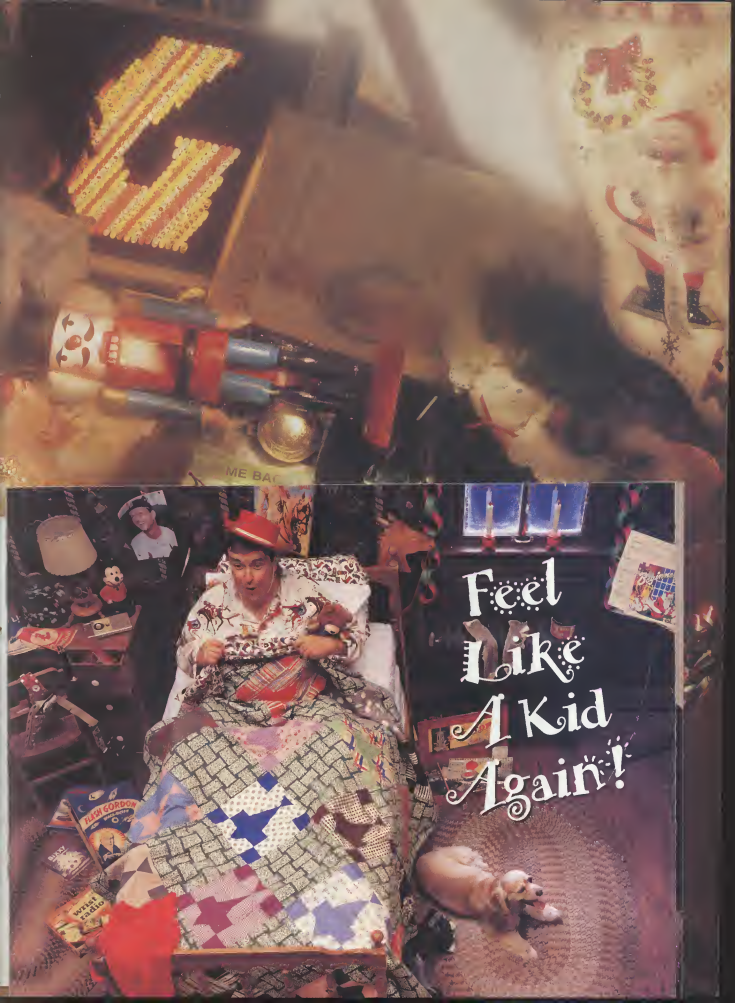
FAX MAILBOX
1-800-563-0047

*Customer must call Delrina to discontinue service prior to end of trial period. © 1994 Delrina Fax Mailbox and Delrina Communication Services are trademarks of Delrina (Seattle) Corp. WinFax PRO is a trademark and Delrina is a registered trademark of Delrina (Canada) Corp.

Circle 227 on reader service card.

Easy
JACK WOOD


Feel
Like
A Kid
Again!
FLASH GORDON
WHAT IS RADIO

Tim, age 8

"Oh boy, oh boy! I got it! *I got* it! HOT DOG! Wait till the gang sees this brand new shiny P5-100XL machine from Gateway 2000. Jumping gigabytes! I feel just like a kid again! I'm even more excited than when I got my Stream Line Electric train set back in 1958. I remember my brother Butch and I had a rootin' shootin' time making that train whiz around the track at lightening speeds. It was *the* most. But it can't compare to the powerhouse 100MHz Pentium processor-based system before me. It even has a quad-speed CD-ROM! I just wish Butch was here to see it. *(Hey Butch, na na na na na — I got the most awesome computer in the world this year! How's the box of orange wool socks from Aunt Doris?)* I think I'll invite Butch over to show off my new P5-100XL. We can watch full-motion video and hear stereo sound that rivals any home hi-fi with the ACS-31 speakers with subwoofer. I hear Gateway's multimedia features and software applications are more entertaining than watching Uncle Miltie. And I know if I ever have any questions about my new computer, the swell people at Gateway 2000 will always be there to help. Thanks Gateway, this has been the best holiday ever in the whole wide world!"

Just in time for the holidays, Gateway 2000® introduces the power-hungry user's dream machine — the P5-100XL. Make the day merry with a 100MHz Pentium™ processor, 4X CD-ROM, and Gateway's new Vivitron™ color monitor using Sony® Trinitron® tube technology. We can't candy coat it...this is quite simply the best computer you can get today!

100MHz Power Train

How could it be faster? It can't! The new Intel® 100MHz Pentium processor in Gateway 2000's P5-100XL is the fastest processor available today that still lets you run all the most popular software applications. Imagine everything on your computer running at full throttle! Once only found in high-end file servers, now *you* can have the unsurpassed power and speed of a 100MHz Pentium processor right on your desk.

New 4X "Quad-Speed" CD-ROM Drive

Twice the speed of a double-speed CD-ROM! You'll be way ahead of the game with the fastest CD-ROM technology available today on your P5-100XL Pentium processor-based machine. Gateway's 4X "quad-speed" CD-ROM and 100MHz of computing power transform your system into a runaway power train. And with a throughput of 600KB per second, the quad-speed CD-ROM is the *only* way you can have true full-screen, full-motion video today. All today's and tomorrow's software applications fly, and video and animation are

smoother and cleaner. Gateway's quad-speed CD-ROM includes a motorized tray and is ATAPI compliant, something you'll need when Microsoft® Windows '95 comes along.

Gateway's New Vivitron Color Monitors!

For decades, Sony Trinitron technology has been the choice for millions who insist on only the *very* best. Now the best computer system in the world is paired with the best screen display in the world. Introducing Gateway 2000's new Vivitron color monitors. Using Sony Trinitron tube technology, these monitors give you the highest quality screen images available. Our 17-inch Vivitron monitor, standard with the P5-100XL, gives you brighter, richer, and crisper colors, a sharper focus and clearer image. With a .26 fine pitch, you'll also get an incredibly high screen definition. The new Vivitron monitor is standard on all Gateway systems that include a 15-inch or 17-inch monitor.

Microsoft Office Professional

This collection of Microsoft's most popular software applications is pre-installed on your Gateway P5-100XL. You get Microsoft Word, Excel, PowerPoint® presentation graphics program, Access® database, and Bookshelf® Bookshelf includes seven best-selling reference books that include *The American Heritage Dictionary, The Concise Columbia Encyclopedia,* and *The World Alamanac and Book of Facts.*

100MHz
GATEWAY2000
800-846-2062

Ida, age 7

"I can't stand secrets. My husband and kids always hide my presents because they know I'll try to sneak a peek if I can. This year was no exception. I waited until they were all asleep, then padded down the hallway, crept down the stairs, very quietly...*yikes*...remember the second step creaks! And...oh, wow, HOORAY! It's a Gateway 2000 P5-75 Family PC! I didn't care if the whole family heard me. Did I feel like a kid again? You bet! Suddenly I was back in circa 1965, when a tip-toe trip to the tree meant first having to free Fluffy's claws from the gold shag carpeting. Then while reaching for my Howdy Doody slippers, I was suddenly rendered blind by the glare of the silver tree, and I went crashing through the aluminum branches and piles of presents! I woke up the whole house that year. *This* year I soared through a billion applications in mere seconds with the 75MHz Pentium processor in that Gateway machine. I was sure the vivid colors of the new 15-inch Vivitron monitor were going to jump right out of the screen! My husband says the friendly salespeople at Gateway made sure we got the computer just right for us. The entire family can join in on my fun, because this powerful multimedia system has something for all of the 'kids' in this house!"

Your family's days and nights will be merry and bright with a P5-75 Family PC™ from Gateway 2000.®

Cruising at 75MHz

This full-featured multimedia Family PC is an investment in your family's future with a super-charged 75MHz Pentium™ processor, so all the included software applications in our Home Bundle run faster than ever!

Family PC Power

As your family grows and changes, this Pentium processor-based Family PC will still be right in style. Power users are right at home with Intel®'s 75MHz Pentium processor and 730MB hard drive. For multimedia enthusiasts, a PCI local bus graphics card, double-speed CD-ROM, 16-bit sound card and Altec Lansing speakers are the coolest. And a TelePath™ fax/modem keeps everyone connected with the on-line universe. The Pentium processor lets you take full advantage of all these features and the many new generations of software applications. For tomorrow's multimedia superhighway, the P5-75 Family PC is your ticket to ride.

A Bright New Outlook!

Your P5-75 Family PC also includes Gateway 2000's new 15-inch Vivitron™ color monitor. All your colorful images will now be richer and brighter with Sony®'s Trinitron® tube technology built into these new monitors.

intel inside
pentium
PROCESSOR
ENHANCED
IDE

GATEWAY2000
800-846-2062

"Get outta my way!"

"Watch out Shelly, you doorknob! It's mine!"

"No, Shawn, it's mine!"

"Ah, it's just like being kids again, Shelly. Remember 1977? The presents, the fun, and Dad's dumb leisure suits? He'd always warn us, 'Kids watch out for that 8-track player, and don't touch your mother's shrine to Elvis!' We were *so* competitive, always fighting over each other's gifts. I'm glad we're all grown up now, and we get along so well, especially since you finally stopped being such a spoiled brat."

"Whatever, Shawn, I'm still Mom's favorite, you buttface."

"Well, I guess Gateway 2000's ColorBook and HandBook portable PCs have brought out the little hellions in us again. But we just can't help fighting over them!"

"Shawn's in awe of my HandBook's ultra-slim size, light weight and powerful 486 processor."

"And Shelly can hardly live with herself because she can't believe the full color capabilities of the ColorBook."

"Gosh Shawn, isn't it nice to have Gateway 2000 here to make us feel like kids again?"

"Yeah, it sure is. In fact, Mom thought now would be a good time to tell you that we really adopted you from Martians."

HandBook® 486SX-33

Now you can have the revolutionary HandBook portable PC from Gateway 2000® for as low as $999! You're getting a real 486 PC that measures a mere 10 by 6 inches and weighs just under three pounds. This little stocking stuffer is the subnotebook to have by your side at all times. It's perfect alone or as a go-between when you're traveling from desktop to desktop.

HandBook 486SX-33

- 2.94 Lbs., 9.75" x 5.9" x 1.6"
- 4MB RAM
- 250MB Hard Drive
- Leather Carrying Case
- Microsoft® Works

$999

*ColorBook™ 486SX-33 QuickShip**

Quick! Make your (or someone else's) holidays brighter with Gateway's ColorBook portable PC. You can have the ColorBook 486SX-33 QuickShipped to your door within 48 hours* of ordering. And there's no reason to worry about that hard-to-buy-for person on your list. Everyone needs the colorful desktop performance of a Gateway 2000 ColorBook! Call today and ask about these and other great deals on Gateway portables.

ColorBook 486SX-33

- 5.7 Lbs., 11.7" x 8.5" x 1.77"
- 4MB RAM
- 250MB Hard Drive
- 9.4" Dual-Scan LCD
- 96/24 Fax/Modem
- Carrying Case
- Microsoft Works

$1999

*48-Hour QuickShip program applies only to the ColorBook 486SX-33 configuration. Your PC will be delivered within two business days from the time of order. No additions or deletions can be made to the configuration. Available for approved credit card orders only. Domestic U.S. orders only.

EASY-BAKI
GATEWAY2000
800-846-2062

Rusty, Lily, Mary and John

"The warmth and fun of the holiday season is timeless. I guess with today's ultra-busy lifestyles, it's even more important to make memories and build traditions with family.

Well, as long as you can stand sitting through the kids' 75 verses of 'Jingle Bells' and Uncle Ricky always stopping by to borrow the nutcracker. But years from now, my wife Lily and I will sit down to watch our holiday videos, and after we fast-foward past the cat eating tinsel off the tree, we'll remember how excited little John and Mary were to open that huge cow-spotted box from Gateway 2000. For just $1,899, Gateway gave us a full-featured multimedia system. And with all the great software titles pre-installed on our 4DX2-66 Family PC, Lily and I started feeling like kids too! Not enough to eat a whole tin of peanut brittle or anything, but we sure stayed up late that night exploring Microsoft Golf and Cinemania '95. Our Family PC has opened up whole new worlds for John and Mary, too. They've been entranced by MS Fine Artist, and Encarta multimedia encyclopedia. Lily and I are happy knowing that the fun and learning they experience with Gateway's 4DX2-66 Family PC will last them a lifetime."

The Gateway 2000® 4DX2-66 Family PC™ brings all the rewards of a fully featured multimedia system into your home at a price that defines "family values." Our Family PCs start from $1,499 for the 4DX2-50 model and include a local bus graphics card, double-speed CD-ROM, 16-bit sound card and Altec Lansing speakers for a quality audio system. Listen to your music CDs, experience all the sights and sounds of the included multimedia software, and connect with people from all over the world through the standard fax/modem, including communications and on-line software.

A Cornucopia of Software!

An incomparable array of software is included with all Gateway 2000 systems — the most you'll get for your money...anywhere. All Gateway 486 and Pentium processor-based desktops are pre-installed with Microsoft® DOS® 6.22, Windows™ for Workgroups 3.11, and *now* Microsoft Money.

The Incomparable Home Bundle from Gateway

All Gateway Family PC configurations include our Home Bundle. This incredible collection of Microsoft software applications has literally everything your family needs to work, play and learn at home. You'll get MS Works, Encarta '95, Money, Cinemania '95, Golf and Fine Artist.

Microsoft Works 3.0 for Windows Multimedia Edition

You'll never need another software package for your home office. This program combines: a word processor, spreadsheet

with graphing, database, electronic communications, financial analysis, charting and illustration.

Microsoft Encarta '95 Multimedia Encyclopedia

Learning is an adventure with text, images, animations and sounds that work together to create a fascinating universe of knowledge. Over 25,000 articles, 17,000 multimedia elements and the complete text of Funk and Wagnall's New Encyclopedia are included.

Microsoft Money 3.0

Now every Gateway desktop system includes Microsoft Money, your personal financial wizard that'll help you take control of your finances and plan for the future.

Microsoft Cinemania® '95

Explore the magic behind the movies with hundreds of reviews, biographies, photos and sound clips.

Microsoft Multimedia Golf

Traverse the wonder of Torrey Pines, consult a golf pro, and play a game of golf any way you please. You'll experience real sounds of chirping birds, swinging clubs and gurlgling water.

Microsoft Fine Artist

Kids can create animated pictures and projects like posters and comic strips, and hear dozens of wacky sounds!

MAY
DAD
MOM
JOHN
GATEWAY2000
800-846-2062

Gateway 2000® Family PCs™

4DX2-50 FAMILY PC

- Intel® 50MHz 486DX2 CPU*
- 4MB RAM
- 340MB 13ms IDE Hard Drive
- Local Bus Graphics with 1MB
- Double-Speed CD-ROM, 16-Bit Sound Card & Altec Speakers
- 2400/9600 Data/Fax Modem
- 3.5" Diskette Drive
- 14" Color SVGA Monitor
- Mini Desktop Case
- 101-Key Keyboard & Mouse
- MS-DOS® 6.22 & WFW 3.11
- MS Works,™ Encarta '95, Money,™ Cinemania '95, Golf & Fine Artist
- 3-Year Limited Parts Warranty

$1499

4DX2-66 FAMILY PC

- Intel 66MHz 486DX2 CPU*
- 8MB RAM
- 730MB 13ms IDE Hard Drive
- Local Bus Graphics with 1MB
- Double-Speed CD-ROM, 16-Bit Sound Card & Altec Speakers
- TelePath™ II 14.4K Fax/Modem
- 3.5" Diskette Drive
- 14" CrystalScan® Monitor
- Mini Desktop Case
- 101-Key Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
- MS Works, Encarta '95, Money, Cinemania '95, Golf & Fine Artist
- 3-Year Limited Parts Warranty

$1899

P5-60 HOLIDAY SPECIAL

At press time, the Gateway 2000 elves were still busy finalizing this very special configuration to brighten your holidays. You'll get an unbelievable value on a 60MHz Pentium processor-based system so incredible that we needed more time to make it extra special!

Call today for all the details!

GATEWAY 2000 FamilyPC

P5-75 FAMILY PC

- Intel 75MHz Pentium™ Processor*
- 8MB RAM, 256KB Cache
- 730MB 13ms IDE Hard Drive
- PCI Enhanced IDE Interface
- PCI Local Bus Graphics with 1MB
- Double-Speed CD-ROM
- 16-Bit Sound Card & Altec Speakers
- TelePath II 14.4K Fax/Modem
- 3.5" Diskette Drive
- 15" Vivitron™ Color Monitor
- Desktop Case
- AnyKey® Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
- MS Works, Encarta '95, Money, Cinemania '95, Golf & Fine Artist
- 3-Year Limited Parts Warranty

$2499

P5-90 FAMILY PC

- Intel 90MHz Pentium Processor*
- 8MB RAM, 256KB Cache
- 1GB 10ms IDE Hard Drive
- PCI Enhanced IDE Interface
- PCI Local Bus Graphics with 2MB
- Double-Speed CD-ROM
- 16-Bit Sound Card & Altec Speakers
- TelePath II 14.4K Fax/Modem
- 3.5" Diskette Drive
- 15" Vivitron Color Monitor
- Desktop Case
- AnyKey Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
- MS Works, Encarta '95, Money, Cinemania '95, Golf & Fine Artist
- 3-Year Limited Parts Warranty

$2899

The Special Treatment Only From Gateway 2000

Gateway's friendly employees are dedicated to providing our customers with only the best service and support. We'll custom configure any system to your specifications. You also get toll-free technical support for the life of your system and a 30-day money-back guarantee. All Gateway 2000 desktop PCs and monitors are backed by a three-year limited warrany on parts. Call or write us and we'll send you a free copy of our warranty.

Easy Payment Options

Gateway accepts most major credit cards and C.O.D. terms, with net 30-day terms and leasing options available to qualified commercial customers.

Gateway 2000 DuoLine™ MasterCard® card

You can apply for the Gateway 2000 DuoLine MasterCard card, issued by Dial National Bank, Des Moines, Iowa. Be sure to ask about our "90 Days No Payment" Program!

Professional Systems

4DX2-50

- Intel 50MHz 486DX2 CPU*
- 4MB RAM
- 340MB 13ms IDE Hard Drive
- Local Bus Graphics with 1MB
- Double-Speed CD-ROM
- 3.5" Diskette Drive
- 14" Color SVGA Monitor
- Mini Desktop Case
- 101-Key Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
- MS Works & Money
- 3-Year Limited Parts Warranty

4DX2-50 $1299

4DX2-66 $1599

(w/ 540MB Hard Drive & 8MB RAM)

P4D-66

- Intel 66MHz 486DX2 CPU*
- 8MB RAM, 256KB Cache
- 730MB 13ms IDE Hard Drive
- PCI Enhanced IDE Interface
- PCI Local Bus Graphics with 1MB
- Double-Speed CD-ROM
- 3.5" Diskette Drive
- 15" Vivitron Color Monitor
- Desktop Case
- AnyKey Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
- MS Office Professional, Bookshelf & Money
- 3-Year Limited Parts Warranty

$1899

P5-75

- Intel 75MHz PentiumProcessor*
- 8MB RAM, 256KB Cache
- 730MB 13ms IDE Hard Drive
- PCI Enhanced IDE Interface
- PCI Local Bus Graphics with 1MB
- Double-Speed CD-ROM
- 3.5" Diskette Drive
- 15" Vivitron Color Monitor
- Desktop Case
- AnyKey Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
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P5-90 BEST BUY

- Intel 90MHz Pentium Processor*
- 8MB RAM, 256KB Cache
- 540MB 13ms IDE Hard Drive
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- PCI Local Bus Graphics with 2MB
- Double-Speed CD-ROM
- 3.5" Diskette Drive
- 15" Vivitron Color Monitor
- Desktop Case
- AnyKey Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11
- MS Office Professional, Bookshelf & Money
- 3-Year Limited Parts Warranty

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P5-100XL

- Intel 100MHz Pentium Processor*
- 16MB RAM, 256KB Cache
- 1 GB 10ms IDE Hard Drive
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- Quad-Speed CD-ROM
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250MB internal tape backup unit copies up to 9.5MB per minute. Comes with Microsoft® Windows™ and DOS® software, one tape and cable. **$149**

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A high-quality color printer at an affordable price! Features 360dpi or up to 720dpi using specially coated paper. Exclusive technology eliminates "feathering."
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A full-featured 300dpi printer loaded with enhanced PCL 5 and 26 scaleable typefaces with 1MB standard HP Memory Enhancement Technology.
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A final bow from the Gateway 2000 employees and family members who acted like kids for this ad! Thanks Cowboy Jim (Public Relations), Leisure Suit Joe (Customer Services), Elizabeth a.k.a. "Shelly" (Creative Services), Shawn (Creative Services), '60s Ida (Accounting), '90s Dad Rusty (Marketing), his wife Lil, and kids Caneel and Danny.

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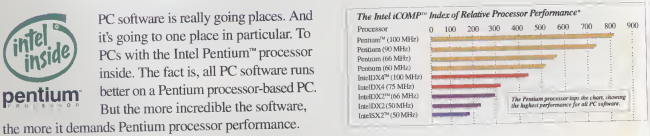

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And there's another reason to make sure the Pentium processor is inside your next PC: economics. A more powerful PC lasts longer, since it will still have plenty of horsepower when tomorrow's applications come along. That, plus the fact that these PCs are now so affordable, makes today the right time to buy a Pentium processor-based PC.

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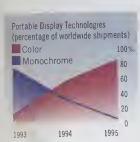
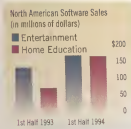


SOURCE: INFODISP

The Future's So Bright: Dull gray screens are vanishing from the laps of business travelers. Monochrome notebooks may be in the majority, but color is catching up.

SOURCE: CAMARRO RESEARCH

Not Just the Fax . . . But faster e-mail and file transfers, too. And more than half of all fax modems sold this year operate at 14.4Kbps or faster.



SOURCE: SOFTWARE PUBLISHER'S ASSOCIATION

SOHO, So Good: In one year, entertainment and home education software sales jumped by 25 and 120 percent, respectively. A lot of the new software is on CD-ROM.

TELECOMMUTING

Do Your Homework

Every morning at eight, millions of workers get into their cars and ask, "Who needs this commute?" More than three million gainfully employed Americans can now say, "Not us."

According to Link Resources, this is the number of information workers in formal telecommuting programs. Millions more work from home informally or operate home-based businesses. And the momentum is building: After the dust settled following this year's Los Angeles earthquake, Pacific Bell surveyed phone customers who worked from home as a stopgap. Ninety percent said they wanted to continue telecommuting.

Next to a phone line, the crucial telecommuting tool is a PC. Desktop prices are falling so fast that small-office/home-office (SOHO) workers can now afford the fast machines they need. And a number of peripheral hardware trends make telecommuting even more comfortable. Multifunction products like Danka's Omnifax G5 and HP's OfficeJet combine printing, faxing, and photocopying in a single unit. If you don't want to rely on one piece of hardware, a cheap scanner, fax modem, and printer provide the same services. And the latest wave of software-upgradable voice modems from Best Data, Spectrum Signal Processing, and Cardinal Technologies provide PC-based voice-mail and fax services, as well as e-mail and remote network connectivity.

You can be cruising the virtual workplace for as little as $2,200 in up-front costs. Must-haves include:

- 486DX2/66-based multimedia PC with 8MB of memory, a 500MB hard drive, and basic software ($2,000)
- 14.4Kbps voice-mail–capable fax modem ($100)
- Business phone line (less

You Can Take It Home: It doesn't take much space to convert your den into a workplace away from the workplace.

PHOTOGRAPH BY ARNOLD TOSKO

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In, Plus Power-Saving Pentium Chips

than $100 for installation)
Useful options include:
- Additional software ($500)
- Ink-jet printer ($300)
- Sheet-feed or flatbed gray-scale scanner ($500)

And once videoconferencing is commonplace, we'll be spared the last real excuse for being bound to the office: the Marathon Meeting. **MH**

Chips Ahoy! So long, 486. Now that NexGen is pushing a new line of Nx586 chips—100MHz, 90MHz, 80MHz, and 75MHz—to PC makers like Blackship, Tangent, and Duracom, we're in for a fast '95. Intel, meanwhile, is bringing cool (as in heat-dissipating) 3.3v 75MHz Pentium chips to market just for notebooks. Hold on to your keyboards! **ML**

Future Memory Now that Novell has abandoned development of DR-DOS and its memory-managing DOS Protected Mode Services (DPMS) standard, how will Symantec and Stac Electronics keep their utilities lean on memory? By creating 32-bit protected mode drivers using Helix Software's Cloaking technology. Soon to follow: Logitech and Standard Microsystems for mouse and network drivers. **SN**

Spin Discs on the Road Multimedia notebooks with full-sized CD-ROM drives and 16-bit sound are arriving in force. IBM's ThinkPad 755CD, with its hot-swapping floppy and CD-ROM drives, DSP voice/fax modem, speakers, TV and MIDI ports, and 7.2-pound weight, is coming soon. Panasonic's V41 is another. These systems go for around $7,500 each—and at 100MHz DX4 speeds, they go fast. **ML**

Hot News: A Paging PC Card

Stay in touch wherever you roam with SkyTel's **SkyCard PC Card pager.** It takes messages when your notebook is turned off—**even when it's unplugged.** This $249 Type II card manages messages with Windows software or uses **DDE links** to Microsoft Mail or Lotus's cc:Mail. The same DDE support can also deliver news briefs or stock quotes into a spreadsheet. **RS**

SkyCard / SkyTel Corp. / (800) 759-9779 / $249 / *Reader Service No. 605*

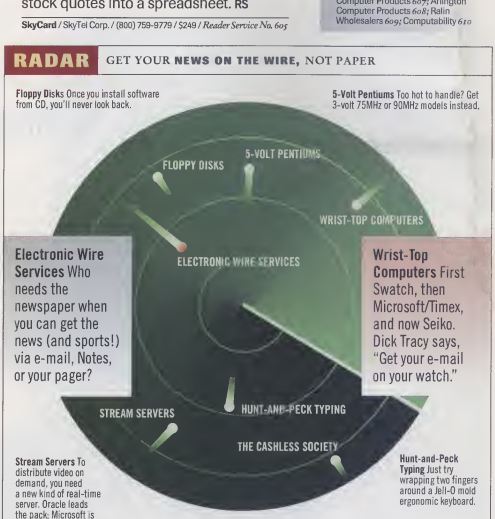
Personal Printers

How low do 300-dpi, 1MB-equipped, 4- to 6-ppm printers go? As of September 27, this low:

Product	Price
Okidata OL400er *Electrified Discounters, (800) 678-8585*	$449
Panasonic KX-P4400 *Bulldog Computer Products, (800) 438-6039*	$449
Panasonic KX-P4410 *Arlington Computer Products, (800) 548-5105*	$449
Epson ActionLaser 1100 *Ralin Wholesalers, (800) 752-9512*	$475
Epson ActionLaser 1100 *Computability, (800) 558-0003*	$479

Reader Service Numbers: Electrified Discounters *606*; Bulldog Computer Products *607*; Arlington Computer Products *608*; Ralin Wholesalers *609*; Computability *610*

RADAR GET YOUR **NEWS ON THE WIRE,** NOT PAPER



What's on the Scope? If it's near or moving toward the middle, pay attention to it. If it's moving off the screen, forget about it for now. Your time is too valuable. **RN**

Just Like on Television

Talk is cheap, particularly when it's coming from your monitor. As more monitors include audio-in jacks and speakers on the side or under the bezel, the talking monitor is moving from novelty to commodity status. Two new monitors stand out: Nokia's $590 17-inch Valuegraph 447L and the $399 15-inch Tatung Audio 15.

The slick Valuegraph 447L is a bargain by any standard—most displays this large start at about $1,100—and is among the first in its class with built-in speakers. Tucked discreetly on either side of the display, the speakers are mounted facing down. Its audio jacks (including one for headphones) are behind the monitor, and volume and image controls are mounted on the front. In addition to hitting the high notes, the 0.26mm dot pitch display can also sync to resolutions as high as 1,280 by 1,024 at flicker-free 75-Hz refresh rates.

On the other hand, Tatung's 0.28mm dot pitch, flat-square display supports resolutions up to 1,024 by 768 at 75-Hz and includes digital controls. Expect to see more of these multimedia displays in 1995, and liberate your desk from loose speakers. **WT**

Valuegraph 447L / Nokia / (415) 331-0322 / $590 est. street price / *Reader Service No. 611*
Tatung Audio 15 / Tatung / (800) 829-2850 / $399 est. street price / *Reader Service No. 612*

MCI Wires Your Business

Just how much service can an online service provide for your business? In MCI's newest offering, **networkMCI Business,** here's what you get for $100 in software and $50 plus a month: one-stop **news monitoring** and other **information services,** Delrina's **WinFax Pro** fax messaging, a universal e-mail box, **PictureTel's videoconferencing,** and—you guessed it—Internet access. But watch out for the hidden extras: Videoconferencing requires ISDN lines, which rack up the costs. MCI offers a three-year ISDN hardware lease at around $110 a month. While that sounds great, don't get suckered into giving them the names of your friends and family. **RS**

networkMCI Business / MCI Business Markets / (404) 668-6000 / $100 for software, minimum $50 monthly service charge / *Reader Service No. 613*

ADMINISTRATORS LOCK WINDOWS DOWN TIGHT

Windows 95: For Deadheads and Suits

WINDOWS 95 WATCH

When Windows 95 makes it into shrink-wrapped boxes sometime in the first half of next year, technophiles will line up outside Egghead stores to snap up the first copies like Deadheads camping out at Ticketron outlets to snag front-row seats. Meanwhile, conventional wisdom says the corporate types will wait—six months or even longer—until they're sure all the bugs have been shaken out.

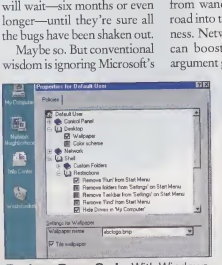
Maybe so. But conventional wisdom is ignoring Microsoft's relentless romancing of the suit-and-tie brigade. Recent beta releases unveil a System Policy Editor that lets MIS lock a PC down so tightly that its user can't deviate from corporate standards or launch an unauthorized application.

The charitable interpretation is that these restraints are like crowd-control barriers that keep individual users from wandering off the main road into tech-support wilderness. Network administrators can boost productivity, the argument goes, by locking out features that confuse novice users.

But there's also plenty of potential for abuse. Depending on the level of control mania, an MIS manager can make a setup so rigid that wallpaper and backgrounds are unchangeable, drives and files are unreachable, the Run command and the MS-DOS prompt are gone, and only a handful of sanctioned applications appear on the Start menu.

And if that's not enough to tempt conservative corporate citizens into the Windows 95 fold, Microsoft has another carrot to dangle: an over-the-network installation option that lets administrators zap a standard Windows configuration across the wire and onto a user's PC. No human intervention, no stack of floppy disks, no objections allowed.

For MIS managers, the natural response to a new operating system is "Just say no." But Windows 95's new lock-it-up features may be irresistible. Who knows? The technofreaks and the suits may finally agree on something—for very different reasons. **EB**



Desktop Dress Code: With Windows 95, MIS can keep desktops uniform.

Contributors: MIKE HOGAN, RAPHAEL NEEDLEMAN, ED BOTT, JAMES OLIVER CURY, RICHARD SCHWERIN, YAEL LI-RON, WENDY TAYLOR, AND SCOTT NAYLOR
Edited by MATTHEW LAKE

PHOTO ILLUSTRATION BY RAPHI GOLDBERG

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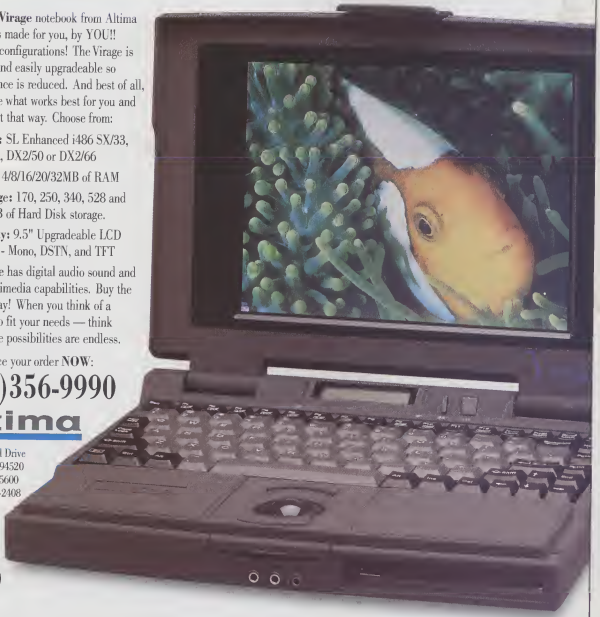

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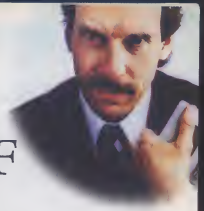

Rupture Relief

BOOM! (Splash.) Hey, what was that? Something just whistled overhead and it landed awfully close. Wait . . . over there. Where **ALL THE SMOKE** is. It's . . . the big guns from Apple. But was that a shot across our bow, or just bad aim? Hold on . . . they're yelling something that sounds faintly religious. Something about . . . rapture? No, it's . . . *rupture.* "The coming rupture." What in the world are they talking about? Now they're hollering about *Wintel*, the monolithic market domination of Windows and Intel. The dark side, the evil empire. The bad guys on the big screen who **EAT THE SLEDGEHAMMER** in the 1984 Big Brother TV commercial.

Apple's message? The Wintel world is about to undergo a painful rupture—*x*86 CISC will **SLAM INTO A DEAD END** and blow up. Ditto all that bloated assembly language–based **FATWARE.** The only thing that can pick up the pieces and save us is RISC, as in PowerPC RISC.

It doesn't help that there are only a few hundred native PowerPC apps, and just a dozen or so **THAT YOU'D RECOGNIZE.** Or that the only other PowerPC player, IBM, pulled its PPC products a week before introduction and still **DOESN'T HAVE A REAL OPERATING SYSTEM** for them.

The guys from Apple sound **BITTER.** Why? Maybe it's that the industry is heading in the direction they pioneered, but all they can **SCRAPE OUT** is a static 10 percent market share, and little of that in the corporate world.

Maybe it's that for the first time they have to **GIVE UP THE FAMILY JEWELS** and license the precious ROM, and they're mad both because they're being forced to do it and even more because it took them so long.

Or maybe it's **TAKEOVER FEVER,** and the loss of control that comes with it. Who's buying? Maybe Motorola, who could turn the Mac into another **QUASAR DISASTER.** Or monolithic market dominator AT&T. Or a Nipponese company (what would they call it? Japple? Nipple?).

And if it's IBM, look out. You know the routines: "What do you get if you cross Apple and IBM? IBM." And if IBM had invented sushi they'd market it as **RAW, DEAD FISH.**

Then the Apple execs trot out the technology goodies. And they're **INSANELY GREAT:** QuickTime VR, which lets you produce mind-boggling interactive **FLY-THROUGH DEMOS** that navigate you around scenes and objects and hardly take up any file space. New intuitive 3-D graphics that make your **JAW DROP.** Groundbreaking OS features in their next two releases ("Copland" and "Gershwin"). And more. But technology isn't everything.

The problem is that the PowerMac is like a nitro-fueled race car— **FAST, SLEEK, FUTURISTIC, FUN.** The Windows/Intel world is a Mack truck: a giant, antiquated, fuming diesel barreling down the road carrying all our business stuff. On a track, Mac beats Mack. But put Apple in the same **BUSINESS FAST LANE** with the big rig and point them at each other and . . .

BOOM! Rupture City.

PHOTOGRAPH BY JAMES McGUIGAN

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Circle 102 on reader service card.

Ed Bott

MICROSPEAK

I've just returned from a strange and exotic land. An insular culture, almost completely cut off from the outside world, where the natives have their own curious rituals and speak their own dialect, practically incomprehensible to the outside world. Now, I'm no anthropologist, but if I play my cards right, I figure I could become as famous as Dian Fossey and her gorillas, or Margaret Mead and her South Pacific islanders, or any of those brave souls who are living among the teenagers of the San Fernando Valley trying to figure out *that* bizarre subculture.

I'm talking, of course, about the natives of Microsoftland. Anyone who's willing to move to Seattle (and kiss the sun goodbye for the next six months) might be able to discover what makes this curious race so different from the rest of us. Is it the caffeine? The hyperactive competitive culture? The uncut adrenaline in the water supply? Who knows?

Over the last decade, I've spent many multiple man-months among the Microsoftians. I don't have all the answers, but in the interest of science, I can share my preliminary research: the first draft of a Microsoft-to-English dictionary. The next time you hear someone from Redmond use any of the following words and phrases, here's what they really mean. . . .

Bandwidth Human information processing capacity. The more bandwidth the better. A high-bandwidth conversation is the ultimate in human communications, in which two people practically finish each other's sentences. Also used as an insult: "I just talked to Furbish . . . there's not a lot of bandwidth there."

Buttoned Down Tight, clean, well thought through. A high compliment. The opposite of random: "No one could believe it. Bill's keynote was totally buttoned down!"

Dog Food The kind of hardware and software used by real people, in the real world. "Eating your own dog food" means actually using the software you write. "Sure, I still use a few DOS applications—they make great dog food."

No-Op Ineffective person, time waster. After a software instruction that uses clock cycles without actually accomplishing anything productive. A serious insult. Contrast with *smart guy*. "Of course the new build is filled with bugs—what do you expect when you put a complete no-op in charge of things?!"

Nonlinear Inappropriately intense negative response. "I told him we didn't have any Starbucks' Gazebo Blend and he went totally nonlinear." In the caste-conscious Microsoft culture, this phrase is usually uttered by a grunt-level worker referring to a higher-level manager.

Party Kick out the managers and add new features to a program, especially after the deadline for adding new features has passed. Also used to refer to what software does to memory and hard disks. "This new code parties on the hard disk for a while and then locks up the system."

Pimped Screwed, hosed, stopped cold. As in "Tough luck, dude: Your project just got pimped." Etymology unknown, although it probably goes back to Bill G's high school days.

Random Not well thought through. Humorous when used in a self-deprecating sense, a deadly insult when used of others. "Steve had this totally random idea and it took us two hours to convince him we shouldn't do it."

Shoot in the Head Remove a feature from a program. "Sure, we can ship on time, as long as we can shoot the TCP/IP connectivity module in the head." In the aggressive but nonviolent Microsoft culture, it's never used to refer to a person.

Shrimp and Weenies Shorthand reference to a bit of Microsoft folklore inspired by an executive who evangelized about the need to pinch pennies, even in a billion-dollar company. "All right, you can have the press reception. But make it less shrimp and more weenies."

Smart Guy In an IQ-obsessed world, the ultimate compliment. "He doesn't shower often, but he's a real smart guy. . . . OK, let's hire him."

One Microsoft **NO-OP** *had this* **RANDOM** *idea that he could ignore the* **SHRIMP** *and* **WEENIES.** *Now the* **SMART GUYS** *are ready to* **PIMP** *this* **TWO-FIVE.**

Take Offline Postpone till later. Usually used to shut down a random argument between two members of a larger group. "Can you guys please take this offline?"

Total Disconnect An extremely low-bandwidth human interaction. "It was a total disconnect. I spent half an hour explaining how this stuff worked, and he just didn't get it."

Two-Five In the Microsoft performance evaluation system, in which a 4 is excellent and a 3 is OK, a 2.5 is less than acceptable. If you're a two-five, you've got one foot out the door. "Well, yes, I need more people, but don't send me another two-five!"

No doubt I've missed a few choice phrases and mangled a few definitions. Sorry—I really don't have the bandwidth to deal with that kind of criticism right now. Send your own contributions (along with flames and fan letters) via e-mail to ebott@pcc.ziff.com.

PHOTOGRAPH BY JAMES McGOON

The ZEOS® Pantera™... "This Is As Good As It Gets."

–*PC World* Best Buy, August 1994

It's true! The ZEOS Pantera is as good as it gets. Leading experts from top industry publications all agree that the ZEOS Pantera is the best PC available. Unparalleled in its field, the Pantera has continuously earned award after award – month after month.

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Supreme Performance

intel inside

The ZEOS Pantera, based on Intel's 486 and Pentium processors, is breaking record after record with its supreme power and awesome performance.

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The ZEOS Pantera 66MHz and 90MHz also received the highest scores in all benchmark tests run by *Windows Sources*, and earned two Experts' Pick awards.

What makes the Pantera blow all others away? Superior engineering – starting with a ZEOS designed motherboard, created specifically to take full advantage of the latest technological advancements. The motherboard is stocked with exceptional features such as an on-board PCI Local Bus IDE Controller supporting up to four IDE devices. For the fastest video performance, we give you a Diamond Stealth 64-bit PCI video card with 1MB DRAM *standard*.

Valuable Extras

yes It runs with NetWare

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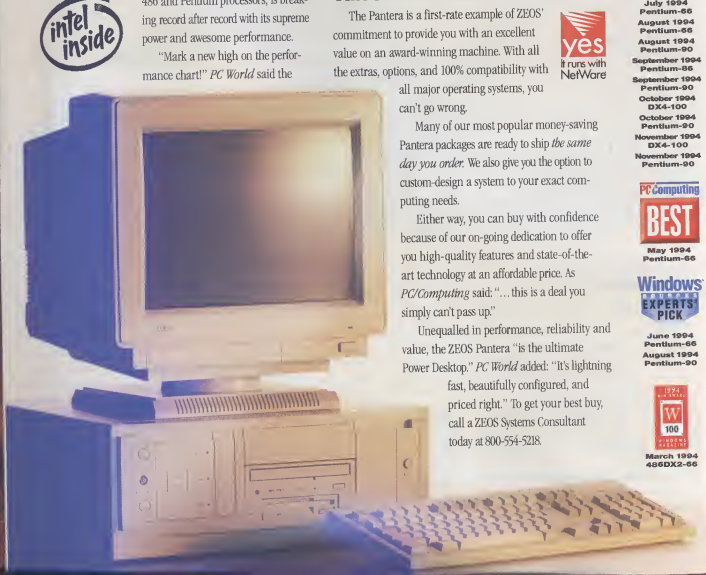

PC MAGAZINE EDITORS' CHOICE
April 12, 1994 Pentium-66
June 28, 1994 DX4-100

COMPUTER SHOPPER
April 1994 Pentium-60
August 1994 Pentium-90

PC WORLD
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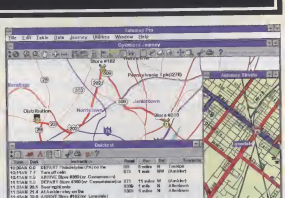

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John C. Dvorak

Domestic Bliss

If anyone is an expert on working at home, it's me. This came to mind recently when I was reading about telecommuting in one of the special supplements you find in those weekly trade journals. The article was written by someone who works in an office, and it showed. The telecommuting issue popped up again when one of my editors at a sister magazine expressed concern about how horrible it would be if a bunch of his staffers started to telecommute.

I got into a minidebate about this, but to no avail. I'm a big advocate of telecommuting and wish the whole country would do it. I've telecommuted myself for over 12 continuous years. If more people do it right and rave about it, then we won't get any more naive articles or reluctant bosses. Here are nine tips for you.

1. Get a private office. The home office should be big and comfortable, with a nice chair, a good desk, and a door you can close when you don't want to be disturbed. The room should have no other function.

2. Live with annoyance. Learn to work with interruptions from family members. Few home office workers are alone all the time. This means there is a wife, husband, girlfriend, roommate, or children to worry about. As annoying as interruptions are, my advice is to live with them. It's not much different from being interrupted at work by office jokers or the guy organizing the football pool. Closing the door helps if you make it clear that this means no interruptions. But if you just keep the door shut all the time, it doesn't work. And if you keep the door open, you invite interruption.

3. Do only a day's work. Avoid guilt tripping yourself about not putting in enough hours. It's hard to judge how much work you are doing when you are out of the office. Most experienced telecommuters will tell you that they get more done at home than in the office. I believe that too many people think they should put in a hard eight hours when at home. Few, if any, people put this much time in at the office (subtract lunch, breaks, useless meetings, and interruptions and you're lucky to get five hours—no letters please). Some would argue that they work in spurts on special projects and moan about the 16-hour day they're putting in. Get real. Don't fret over the hours. Pace yourself by projects. Make sure you get the job done. Supervisors are convinced that work-at-home telecommuters are goofing off all the time. Make sure to get some goofing-off time in to suit them.

Don't be a **CHEAPSKATE**, *and stay tight with the computer gurus at work.* **RAVE** *about telecommuting, so we all don't sit in* **RUSH HOUR** *traffic breathing* **POLLUTION.**

4. Focus on work, not housework. Do not be cowed into doing the dishes during working hours. My first stint at telecommuting was during a time when my wife worked. When she came home, she expected the dishes to be done and other housework, too, from what I could tell. You cannot telecommute with this pressure. It worsens if you drink coffee all day and make a mess. Try to keep the mess in your office and do housework only with your partner, not for your partner when you should be working.

5. Be as mobile as you can. Have a laptop and a desktop or some sort of combination machine. If you can telecommute from home you should be able to do it on the road. Before you embark on a trip expecting to connect to Louts Notes or the network (or whatever), experiment in a noncritical situation. Getting a modem to connect from overseas can be nightmarish, for example. Make sure to bring an acoustic coupler when going to an alien environment.

6. Avoid the phone. Unless you are in sales, don't chat on the phone all day. Get an answering machine and use it to screen calls. Avoid letting people corner you into returning useless calls.

7. Use modern equipment. Don't be a cheapskate when it comes to your equipment. Even if the company won't spend as much as you think it should, go ahead and spend your own money for high-quality ancillary gear such as V.34 (28.8Kbps) modems and maybe a good PostScript printer or two (color and speed). Most telecommuters have much better equipment at home than they do at the office. Better equipment means more efficiency, and efficiency is what telecommuting is all about.

8. Stay in touch with gurus. Stay tight with the network administrator or computer gurus at work. They can help you connect better, and get on and off the network remotely. If your company does not have an expert in these matters, make yourself the expert and promote telecommuting within your company.

9. Promote, promote, promote. Promote telecommuting at the company and in your community. I don't understand why people put up with the rush hour phenomenon day after day, month after month, sitting in traffic breathing pollution. While some jobs require presence, many do not. Telecommuting is the answer. But it has to be promoted. Let's all promote it.

PHOTOGRAPH BY JAMES McGEOCH

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Circle 137 on reader service card.

Gil Schwartz

Upgrade Angst

January 18, 1994: I woke up this morning and felt like a previous generation. I didn't like it. It's clear I'm going to need something to freshen up my act—to be faster, stronger, more with-it, knowing, and potent for the future. I'm just not going to get that kind of thing done with my little, puny 486 running at 33 measly megahertz! And yet . . . Frisky's been a mighty fine home companion for me. Shouldn't I leave well enough alone?

February 23: Got a new machine at the office. Now I know, if I never did before, that my old pal Frisky's day is done. Just look at this thing! It's a 66MHz 486 with local video bus—and I can't deny it's faster. Maybe not a lot faster, you know, but the speed difference is clear, especially when you tilt your head very gently, close one eye, and squint real tightly. Yup. Definitely faster. Of course, it's not like I was just sucked off the planet into an alien spacecraft in which things run so much more rapidly that you feel like a warthog watching men build a fire. But it's great, no question. Gotta get one. Or something like it.

March 1: Forget 66MHz. I'm going to wait for more. I deserve more!

March 14: It's 2:00 a.m. I can't sleep. It has occurred to me that although the prices of basic computing units are plummeting nicely, there's a lot more to the machine I have in mind: A 2-gigabyte hard drive at least, a 17-inch monitor, 16 megs of RAM on the motherboard—maybe more! Thirty-two–bit graphics, unless 64 would be better? I have no idea. How much could this little thing be costing when it's all done? Six grand. The same amount I spent on Frisky, who is now worth something south of $800. Horrible! I've got to make a decision. This not knowing is killing me. Think I'll have a drink.

May 3: Sorry it's been so long, Diary, but that visit to the Betty Ford Center did me a world of good. I really think I'm ready to get back to my decision making. The best news is that since we last spoke, Intel has come up with 100MHz 486DX4s! Isn't that great? I'll go shopping for one tomorrow!

May 5: Yeah, OK, except now it seems the 60MHz Pentiums are becoming available in adequate numbers, and the price is OK, too. Not great yet. If I wait . . . but should I wait? Or should I pay the premium now? Augh!

May 6: It's the Pentium 60. No, the DX4-100. No, the Pentium, for the performance edge! No, the DX4, for price! How much faster than 100MHz do I need to be?! Pentium! DX4! Help! I can't take it anymore!!!

Dear Diary: Should I pop for a **PENTIUM** *or pinch precious pennies? There's only* **ONE WAY** *to live through the* **TORMENT** *of technological transition: One day at a time.*

July 14: Hi, Diary. They finally untied the back of my white jacket, so I can move my arms now. So where were we? Oh yes. Guess what? I don't have to buy an Intel-based x86 at all! I know that now! Apple has just come out with the first generation of PowerPCs, which, quite fabulously, run Windows better than Windows! Isn't that great? Can you believe it? The first cross-platform machines—and they're cheap, too! Gonna get one today!

July 15: Turns out they're not cheap, Diary, if you want a hard drive and monitor and stuff. Drat. I'm off to go bungee jumping without a cord.

July 15 (later): Decided to look a little more before I leaped, Diary. I mean, think about it: Mac and PC, together! The ultimate desktop, backward compatible! Don't it make you want to sing?

August 8: I'm going to the beach and I'm not bringing anything with me but my old 286 laptop and six cases of designer beer. Did I mention that the stupid PowerPC runs Windows all right . . . but only in Standard Mode? Hey, when Frisky tells me he's operating in Standard Mode, I know something's wrong with him. This whole cross-platform thing is as illusory, speculative, and overhyped as commercial applications on the Internet! Feh! I give up!

Sometime in September: I'm just sucking wind here. Is the top end a meaningful alternative? Is the bottom end too cheap to pass up? I must rise above these issues and master them! But how?

October 24: I have shaved all the hair from my body and retreated to a mountain ashram in Northern California for the wait. I believe that sometime during the last quarter Pentium 90s will attain a perfect state of affordability. At that time, I know a bright light will shine into the back of my mind and a large dinner gong will chime in my heart and I will emerge to make the best computer acquisition of the decade. The Way is clear now.

December 25: Put a new controller card in Frisky that allows me to stack another hard drive in there. Took out my old tape drive and installed a new SCSI card that will let me daisy-chain peripherals. The Friskmeister doesn't run too bad, either, when all is said and done. I'm still in the market for a 90, Diary, don't worry, and when they drop below a grand, please let me know.

PHOTOGRAPH BY JAMES McGUIGAN

What's one without the other?

Your notebook PC and the new HP DeskJet 320 printer.

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New! Share vs. TeamTalk

Discussion Databases Pass Notes

Online discussion databases can do wonders for a company's productivity. You only have to look at users of Lotus Notes to prove it. But if all your company needs are discussion forums, you may find installing Notes is like using a SCUD missile to kill a june bug. There are alternatives.

Both Collabra's Share and Trax Softworks' TeamTalk take an end-user approach to public discussion and document databases. While you won't get the robust replication or application development features of Notes, you won't have the installation or administration headaches that come with those high-end features. More to the point, you won't pay nearly as much. While Notes costs from $300 to $500 per user, Share and TeamTalk each cost about $70 per user. (Even the stripped-down version of the Notes client, Notes Express, due out soon, will sell for between $100 and $150.)

Near Look-Alikes Both products sport Notes-like desktops with large icons that represent a forum (Share) or a topic (TeamTalk). Share also lets you arrange multiple forums under a group icon.

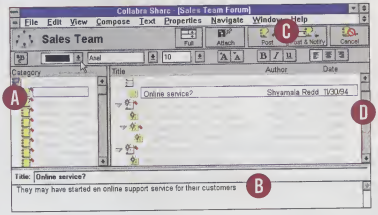
Once you open a database, the differences between Share and TeamTalk become readily apparent. Share uses a metaphor that anyone familiar with the Windows' File Manager can follow: Discussion categories are displayed in a hierarchical tree in the upper left-hand pane, a threaded view of the messages within each category is in the upper right-hand pane, and each individual message is in the bottom half of the screen. Jumping between subcategories or navigating through threads is as easy as scrolling and clicking on what you want to see.

TeamTalk lets you organize nested databases in the same way Share does, but its interface makes them substantially harder to navigate. When you open a topic database, you're confronted with more icons representing subtopics. From the main topic you have no idea how many levels of subtopics there are, and once you click on a subtopic, you lose your view of previous levels.

TeamTalk also takes a different approach to displaying discussions. Instead of the threaded view of messages that Share uses, TeamTalk displays a transcript-like view of the conversation in a single window, with each user's comments displayed one after the other. This makes for more informal interaction and is ideal for brainstorming, but can make for disorganized discussions. However, it's worth noting that our MVP Award winner in the Groupware category, DCA OpenMind, offers a similar view for its discussion databases (see page 198). In addition, TeamTalk will be included in an optional threaded view in its next release.

Searching Questions Both programs support full-text searches. In general, Share has a more sophisticated search

GUIDED TOUR Share Your Mind



A. The **Category view** in Collabra's Share gives you a top-down look at all topics that are in a forum.

B. You can compose **new messages** e-mail-style by using Share's rich-text editor.

C. To extend your discussion, you can include non-Share users through **e-mail extensions.**

D. From the **thread window,** you can see existing messages, as well as the position of the message you're composing.

Picking Up the Thread: For discussion forums, Share's usability is far ahead of Notes. Its multipane view lets you see the forum structure while you create a new message.

Two Winners: Both Collabra's Share and Trax's TeamTalk are justifiable alternatives to Lotus Notes. You won't get all of the application-building features of Notes, but they're ideal if you want to quickly set up discussion forums in your workgroups.

PICKS	FEATURES OR USABILITY?
Intuitive threaded discussions, robust full-text searching	Collabra Share
Low-end, transcript-style conversations, easier administration	Trax TeamTalk

Share

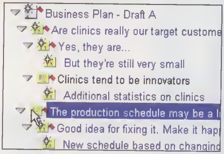
USABILITY: *CompuServe-like forums with threaded messages under a clean interface.* ★★★
TECHNOLOGY: *Robust security and searching features, capability to include e-mail users in discussions.* ★★★★
VERDICT: *A low-cost, easy-to-use discussion database that offers an excellent alternative to Notes' high-end hassles.* ★★★★

TeamTalk

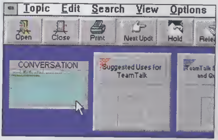
USABILITY: *Confusing topic organization makes it hard for users to keep their place.* ★★
TECHNOLOGY: *Adequate features for most simple discussion databases, but limited searching tools.* ★★★
VERDICT: *A quick, low-cost way to record discussions or set up a virtual conference, perfect for brainstorming.* ★★★

SIDE BY SIDE

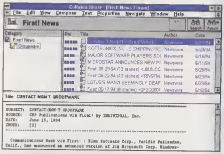
TWO STRONG **NOTES ALTERNATIVES**



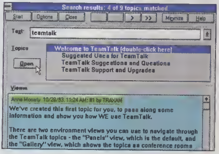
Unraveling Threads: It's easy to manage discussions in Share. You can jump to the beginning of a new thread or to the next unread message quickly with the click of a button.



Icons, Icons Everywhere: Although TeamTalk lets you view current topic conversations or launch your own subtopic conversations, it doesn't provide the overall organization or strong usability features of Share.



Is That Relevant? Share supports Boolean searches as well as searches on word variations. It ranks the results of these searches in order of relevance.



And, Or—Not! TeamTalk lets you search for text strings across multiple topics, but it doesn't rank results by relevance like Share does.

FILEBOX

Share

RAM Requirement: 4MB.

$70 est. street price per user
Collabra Software
(800) 474-7427, (415) 940-6400
Reader Service No. 621

TeamTalk

RAM Requirement: 4MB.

$395 est. street price for 5-user starter kit
Trax Softworks
(800) 367-8729, (310) 649-5800
Reader Service No. 622

Guide to the Ratings

In each applicable area—usability, performance, technology, and verdict—a product is awarded from one to five stars. In some cases, other factors (such as price) also affect a product's verdict.
★★★★★ **Excellent** A market leader that offers exceptional performance.
★★★★ **Good** Excels in a few areas; a good buy, though not perfect.
★★★ **Acceptable** Average for its class; a justifiable purchase.
★★ **Poor** Out-of-date or substandard, possibly offset by some positive features.
★ **Unacceptable** Missing necessary features or suffering from subpar implementation; avoid

engine, but only TeamTalk lets you search across several topics. Share's strengths include its capability to search on wild cards and for word variations (a search for the word *computer* will return documents with *compute* and *computing* in them as well). Share also returns relevance-weighted search results and lets you narrow current searches. In TeamTalk, you can narrow your search only by date, case sensitivity, or specified forum.

Of the two products, Share is slightly more complicated to install and configure. When you log on, in addition to a name and password, you have to specify a user I.D. file—a usability no-no. In addition, setting up a forum with Share is less than intuitive.

Both products let you name your databases, include a text description, choose bitmapped icons, set a storage policy, and designate the database as public or private. TeamTalk also lets you permit—and even encourage—anonymous comments. Share, however, lets you specify several levels of user access, from read-only through full creation rights. You can also password protect each database in Share, while TeamTalk only provides for user passwords.

We could nitpick ad nauseam at the usability gaffes these programs make. Still, we wouldn't hesitate to recommend either of them. Share is a finalist for one of our MVP Awards this year (see Groupware, page 198) and is more robust than TeamTalk. By contrast, TeamTalk is rougher around the edges, but it's slightly easier to manage than Share.

Either of these applications is a good choice for running a groupware discussion. Our advice is to go with Trax's TeamTalk for its ease of management and Collabra's Share if you want more robust searching and a better interface.

SHYAMALA REDDY

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

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OfficeJet

HP Turns a Business Triple Play

USABILITY: *Front-panel LED menu puts you in quick control.* ★★★½
PERFORMANCE: *Superfast text printing, average performance printing text with graphics.* ★★★★
TECHNOLOGY: *Fax, copier, and ink-jet printer—all in one handy bundle.* ★★★
VERDICT: *Three great products integrated into a low-cost, space-saving desktop wonder.* ★★★★

Snappy Business Trio: Wouldn't it be great if you could leverage the power of a printer, fax machine, and copier without a hassle?

Speedy Jet: HP's new three-in-one OfficeJet consistently speed through our standard ink-jet printer tests.

Pretty Quick Printing: Ink-Jet Speed Tests

When it comes to saving space on that cluttered desk in your crowded office, nothing makes more sense than Hewlett-Packard's versatile OfficeJet. The OfficeJet rolls three requisite office technologies—an ink-jet printer, fax machine, and copier—into one great product with a pleasingly small footprint. It plugs into your PC's parallel port like an ordinary printer, while allowing you to print a file and send or receive a fax simultaneously—for a street price of less than $800.

The OfficeJet isn't the first multifunction printer we've seen, but it is the least expensive. High-end offerings such as Canon's Fax B340 cost more than twice as much ($1,795) and contain items that most offices already have, such as a telephone and answering machine. But one advantage of the high-priced products is that you get a laser printer rather than an ink jet, which means faster printing and better output.

Fit to Print The OfficeJet prints on plain paper, but it's functional with glossy paper and transparencies as well (watch out for streaking and smudging on these other media types). You can also quickly and easily adjust the paper tray to legal- or letter-sized envelopes, and A4 and legal-sized paper. The OfficeJet includes 14 scalable TrueType fonts for Windows (6 for DOS) and connects through a high-speed parallel interface.

As for performance, if you print a lot of standard business letters (text only), the OfficeJet screams: It beat HP's DeskJet 520 by more than 90 percent.

And if you spend much of your business day sending and receiving faxes, the OfficeJet can help automate and ease your work. You can preprogram up to 65 frequently faxed numbers into memory, and the OfficeJet automatically redials busy signals up to five times.

If you need to distribute the same information to multiple locations, the OfficeJet lets you fax a document to up to 10 different numbers—ideal for marketing announcements and sales materials.

Fax Drawback One of the drawbacks of this printer is its lack of a fax modem: Every fax you send must come from a printed copy. If you don't have a fax modem, this means wasting paper to print those business letters so you can send them from your OfficeJet.

While you wouldn't want to tackle a large copying job with the OfficeJet, its copier function certainly is handy if you need a few extra copies and don't want to spend the time and hassle driving to your local copy shop (or walking down the hall to wait in line at the main copier).

Setup of the unit is easy—we had it working in less than an hour. The OfficeJet's front-panel LED includes an easy-to-use Option menu that lets you access everything from resolution control to speed dialing—without having to look up confusing function codes.

If you're trying to find an integrated office solution for faxing, printing, and copying at a reasonable price, you simply can't go wrong with HP's OfficeJet. RICHARD SCHWERIN

FILEBOX

OfficeJet

Competitors: Plustek's $799 ScanFX combines its scanner/copier with your own fax modem and printer, and Canon's Fax B340 combines a printer, fax modem, phone, answering machine, and copier for $1,795.

Dimensions: 17.25 by 15.50 by 11.12 inches.

Weight: 19.5 pounds.

Memory: 1MB.

Display: Two-line LCD.

$799 est. street price
Hewlett-Packard
(800) 752-0900, (415) 857-1501
Reader Service No. 623

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

PHOTOGRAPH BY ARNOLD TIDSLEJO

Second Time's the Charm

We'll be the first to admit that Hewlett-Packard's OmniBook was a disappointment when it was first introduced. But we're glad HP stuck with this little notebook, because the new OmniBook delivers the hard disk and screen that its predecessor lacked.

Here's the history: The original OmniBook broke ground by giving users six or more hours of battery life while maintaining a feathery 3-pound weight. But with no hard drive and a screen that wasn't backlit, it was hard to use for even a few minutes. The OmniBook 600 is almost a pound heavier, but it features a splendid 8.5-inch, dual-scan, backlit color display and your choice of a 170MB or 260MB hard drive. And with either a 50MHz 486DX2 or a 75MHz 486DX4 CPU with accelerated video running on local bus, the new OmniBook is more muscular than its older brother.

Omnifunctionality? The OmniBook 600 blurs the line between notebook and subnotebook: Memory is expandable to only 12MB or 16MB (depending on the processor), but you do get a removable hard drive and two stacked PC Card Type II slots that can function as a Type III slot. Gone are the ROM-based applications, though it still features "instant on." A bidirectional infrared port is standard, and LapLink Remote Access comes bundled. There's a full complement of ports, including a connector for a port replicator. And merciful heavens, there's an external floppy drive.

The machine has physically grown a little, and its weight without the AC adapter now tips 3.8 pounds. Even so, it's the lightest color subnotebook we've seen. Best of all, it retains the superb keyboard and pop-out mouse-on-a-stick pointing device of earlier versions.

Pound Four Pound: From its handy mouse-on-a-stick to its brilliant new color display and substantial hard drive, HP's OmniBook 600 is finally everything you want in a subnotebook. And the choice of a 50MHz or 75MHz CPU gives you real processing power.

Potent Omni: In our real-world Windows application tests, the OmniBook outran a similarly configured Ambra notebook by 12 percent.

Yes, the pointer looks silly, and yes, it's for right-handed users only. But it requires no surface (hold it between your thumb and index finger if you like), is remarkably deft, and is cheap to replace if you lose it.

What You See Even stalwart apologists of the OmniBook's non-backlit screen will love the new display—and not only because of its size. Capable of 256 colors at 640 by 480 resolution, the screen is now brightly lit with a rich and even saturation of hues. The video subsystem comes with 1MB of VRAM so that it can display 256 colors at 1,024 by 768 resolution on an external monitor (the original OmniBook had no video-out connector). Since video runs on accelerated local bus, this an ideal subnotebook for multimedia business presentations wherever an external monitor is available.

In Windows performance tests, the OmniBook 600 beat the Ambra N75 notebook and equalled the speed of several beefier systems we've tested.

The OmniBook 600 comes bundled with Microsoft's Windows for Workgroups 3.11, an appointment book, a financial calculator, and other PIM utilities. Plus, Plug and Play is built in to the unit to take advantage of Windows 95 when it finally reaches market.

An excellent keyboard and pointer, a gorgeous color display, and a feature set that would shame some portables that weigh twice as much? Yes, the OmniBook has matured into a first-rate subnotebook. This time, you have to give it a try. MARTY JEROME

USABILITY: *Improved display and keyboard.* ****
PERFORMANCE: *Accelerated video on local bus with a 50MHz 486DX2 or 75MHz 486DX4 CPU.* ****
TECHNOLOGY: *Combines a big drive, color display, and infrared I/O—at under four pounds.* *****
VERDICT: *A knockout subnotebook.* ****½

FILEBOX

OmniBook 600

CPU: 50MHz 486DX2 or 75MHz 486DX4.

RAM: 4MB or 8MB, expandable to 12MB or 16MB.

Hard Drive: 170MB or 260MB.

Display: Dual-scan backlit passive-matrix color.

PCMCIA: Two Type II slots that can function as one Type III slot.

Weight: 3.8 pounds without AC adapter.

Bundled Software: LapLink Remote Access, Windows for Workgroups 3.11.

$2,800 est. street price for the 50MHz DX2, $3,500 est. street price for the 75MHz DX4
Hewlett-Packard
(800) 443-1254, (503) 757-2004
Reader Service No. 624

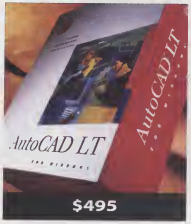
PHOTOGRAPH BY ARNOLD TIESLIO

Guide to the Ratings: *****Excellent ****Good ***Acceptable **Poor *Unacceptable

The success of AutoCAD has inspired dozens of cheap imitations.

If you need a CAD package but don't need all the sophistication of AutoCAD® software, don't settle for a cheap imitation. Get new AutoCAD® LT for Windows.™ Unlike those "bargain" packages, it's based on the world standard—AutoCAD—and gives you features the others can't duplicate. Like more accurate 2D drawing tools for designing discrete parts. 3D design and layout tools and full support for layers and blocks. And drawings you can link, so changes on the master are automatically reflected in other drawings. What's more, making these drawings is as easy as using a few simple icons and tools. But if you do find yourself with a question, you'll have access to on-line help as well as free 90-day product support. And since AutoCAD LT reads and writes data just like AutoCAD software, your work will be compatible with over a million AutoCAD users worldwide. Chances are your clients and colleagues are among them. So beware of cheap imitations. Visit your Authorized AutoCAD Dealer or leading retail software store. Or, for a free demo disk, call 1-800-228-3601 and ask us for Demopack A217. Outside the U.S. and Canada, fax 415-491-8311.

And one inexpensive one.



Autodesk

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Chip Shot Still in the Rough

USABILITY: *One-thumbscrew case means no torture at upgrade time.* ****
PERFORMANCE: *Snappy, but slower than Intel's P90.* **
TECHNOLOGY: *Some nifty on-chip gimmicks, but we didn't see the payoff.* ***
VERDICT: *Just another Pentium clone. Wait till next year, when NexGen promises new CPUs to blow away Intel.* ***

Ho-hum. Another me-too P90? Not exactly. Yes, the power-up screen reports that Tangent's newest PC is fueled by a P90, but the chip in question isn't from Intel. This is the first PC to incorporate NexGen's Nx586 CPU, a Pentium work-alike designed by startup NexGen and manufactured by IBM Microelectronics. It's designed to out-RISC Intel.

Except for the CPU, the Tangent Nx5 P90 looks like just about any other high-end PC on the market. The $2,699 price includes 16MB of RAM, a 540MB hard drive, a fast Diamond video card, and a dual-speed internal CD-ROM drive. Its 15-inch Energy Star monitor helps keep the price down, but we recommend swapping this for a 17-inch model if you've got the extra bucks.

Step Down Under the hood (one thumbscrew's turn away) is the real star of this show: a designed-from-scratch motherboard with the Nx586 chip and its system logic chip sets. The CPU includes a few design tweaks that should boost performance—like a 16K onboard cache (compared with the Pentium's 8K) and a Level 2 cache controller integrated onto the chip so that it can run at full clock speed (the Pentium's external controller is throttled down to 60MHz).

Both the Pentium and the Nx586 use 64-bit buses and superscalar designs that can shoot instructions down twin pipelines. At the submicron level, though, NexGen claims that its RISC86 design can handle microcode with superior smarts. According to NexGen, the result is Pentium-equivalent performance at a lower clock speed. But the chip maker has taken the somewhat dubious marketing step of labeling its CPUs with numbers that don't match their clock speeds. This P90 actually runs at 84MHz, and the upcoming P100 clocks in at only 93MHz.

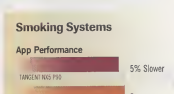
Talks the Talk That discrepancy would be all right if the machine lived up to its billing, but the Tangent Nx5 P90 consistently lagged behind similarly configured systems with Intel P90s inside. Part of the problem may be the VL-Bus design, which is more appropriate for 486s than Pentium-class PCs. When the NexGen PCI chip set is ready early next year, it should make for a zippier system. Also, the optional external floating-point processor won't be ready until next year, and it's a must for calculation-intensive applications like drafting.

Compatibility, on the other hand, doesn't seem to be much of a problem: This system does come with the Windows seal of approval from Microsoft, and it had no problem running through our demanding Winstone benchmark suite, which incorporates 12 of the top Windows business applications.

Price-wise, the Tangent Nx5 P90 is about $300 less than Dell and Gateway models that have faster PCI designs and bigger hard drives. In our minds, that small difference in price doesn't justify abandoning the Intel standard. However, NexGen does have a P100 in the works, and it promises to have much faster CPUs in 1995. If the company can deliver a low-priced system that dramatically outperforms Intel's best, it will have a shot. Until that time, we'll have to pass. ED BOTT

NexGen Inside: When is a P90 not a P90? When it's an Nx586 running at 84MHz. Its VL-Bus design held the Tangent Nx5 P90's performance back.

Try a New Tangent: NexGen's Nx586 processor couldn't keep the Tangent Nx5 P90 up to the speed standards set by Micron's PCI Power Station and Dell's Dimension XPS P90. While the system does rely on a 64-bit bus and superscalar design, it actually runs at 84MHz. Design tweaks such as 16K of onboard cache and a Level 2 cache controller integrated onto the chip didn't make a big difference.



NOTE: WINSTONE IS A SYSTEM-LEVEL BENCHMARK THAT RUNS 12 OF THE MOST POPULAR WINDOWS BUSINESS APPLICATIONS

FILEBOX

Tangent Nx5 P90

CPU: 84MHz NexGen Nx586, Pentium compatible, 16K onboard cache, 256K Level 2 cache.

Configuration Tested: 16MB of RAM, 540MB hard drive, Diamond Stealth 64 VRAM video adapter, dual-speed CD-ROM drive, VL-Bus, 15-inch Energy Star monitor.

Warranty: Two years limited parts and labor, with optional on-site service available.

$2,699 est. street price
Tangent Computer
(800) 800-5550, (415) 342-9388
Reader Service No. 625

PHOTOGRAPH BY ARNOLD TOSELLI

Guide to the Ratings: *****Excellent** ****Good** ***Acceptable** **Poor* *Unacceptable*

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Small-Office Power Scanners

How can you justify buying a grayscale scanner? For starters, consider that it will let you perform time-saving OCR on piles of incoming mail, turn your printer into a photocopier, and expand the range of your fax modem—all for $500.

OK, you're sold. But which grayscale scanner do you buy? If you prefer a flatbed, look to the new Canon IX-3010 or HP's ScanJet 3p. They're both easy to use and don't take up very much space.

Click Here for Results

The Canon IX-3010 and ScanJet 3p are based on the same hardware and sell for the same price, but they come with different software bundles.

The Canon IX-3010 ships with Caere's OmniScan Plus software—a collection that includes OmniPage for OCR, Image Assistant for color image editing, and a photocopier-style program that sends scans straight to your printer.

Better yet, a neat little front-end control panel calls up each element at the click of a button—no fussing with Program Manager icons. Other strong points in the bundle are OmniPage's addition of a Scan option to your word processor's File menu (ideal for quick-and-easy OCR) and PageKeeper Portfolio, a starter pack for document management with a limited quota of scanned documents. To sweeten the deal further, the scanner has a two-year warranty that includes next-day delivery of a no-charge replacement from Canon.

Cooler Jets While the ScanJet 3p lacks the unified button-bar program launcher of Canon IX-3010, it packs quite a punch. Its "home" application is PicturePlace, a graphics gallery of thumbnails organized in catalogs. From it, you can launch the included graphics scanning program, PictureScan, or editing program, PicturePlace Editor.

If you're doing OCR, however, you have to run a separate program, Calera's WordScan 3.0.1. The WordScan toolbar mimics the toolbar from your favorite suite (Microsoft Office or Lotus's SmartSuite). This big usability plus doesn't quite make up for the fact that WordScan is a new application to learn. The Canon IX-3010's click-and-recognize OmniPage product provides similar recognition strength without such demands.

All told, these two scanners provide the same services—graphics scanning and editing, convenience photocopying, and OCR. Being TWAIN-compliant, they can be driven by your fax software to convert printed images into faxable images. And both scanners handle letter-sized documents and can be easily upgraded with optional document feeders to accommodate a hopper full of documents of other sizes—even legal-sized ones.

If you want a quick and easy scanning interface, the Canon IX-3010 is your best bet. But for more OCR-intensive use and a way to catalog graphic images, go the ScanJet 3p route instead. LIESL LA GRANGE

Separated at Birth? With the same scan engine, scanning window, casing, and resolution, the Canon IX-3010 (left) and ScanJet 3p (right) could be twins—except for their software, which counts for a lot.

PICKS CHOOSE YOUR **SCANNER SMARTS**

Easy-to-use grayscale scanner, decent OCR	Canon IX-3010
Best OCR, strong image editing and archiving, seamless setup	Hewlett-Packard ScanJet 3p

Canon IX-3010

USABILITY: *Consistent, well laid-out software and handy button bar.* ★★★★

TECHNOLOGY: *300-dpi 8-bit grayscale scans interpolated to 1,200 dpi in a small package.* ★★★

VERDICT: *Best for quick black-and-white scanning and occasional OCR.* ★★★★

ScanJet 3p

USABILITY: *Near plug-and-play simplicity, but its applications lack a consistent interface.* ★★★

TECHNOLOGY: *Same hardware as Canon IX-3010, but with HP's AccuPage for enhanced small-text scans.* ★★★★

VERDICT *Superior OCR for serious document management.* ★★★★

FILEBOX

Canon IX-3010

Competition: Sheet-feed scanners like Visioneer's PaperMax and Logitech's Power Page.

Software Features: OmniScan Plus (includes Image Assistant, OmniPage for OCR, and a photocopier-style scan-to-print program) and PageKeeper Portfolio (limited-record document management software).

$500 est. street price
Canon Computer Systems
(800) 848-4123, (714) 438-3000
Reader Service No. 626

ScanJet 3p

Software Features: WordScan OCR, PicturePlace, AccuPage 2.0, PictureScan, and PicturePlace Editor.

$500 est. street price
Hewlett-Packard
(800) 722-6538
Reader Service No. 627

PHOTOGRAPH BY ARNOLD TOSKEI

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

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System Requirements: IBM PC or Compatible 286 or higher Processor, 386 recommended. 2MB RAM, 4MB recommended. Hard Disk Space 4MB minimum. Microsoft Windows™ 3.1. Any monitor supported by Windows (except CGA). Mouse or other pointing device supported by Windows. Any printer supported by Windows.

MAILCODE 88573 ICSPOO3

Circle 288 on reader service card.

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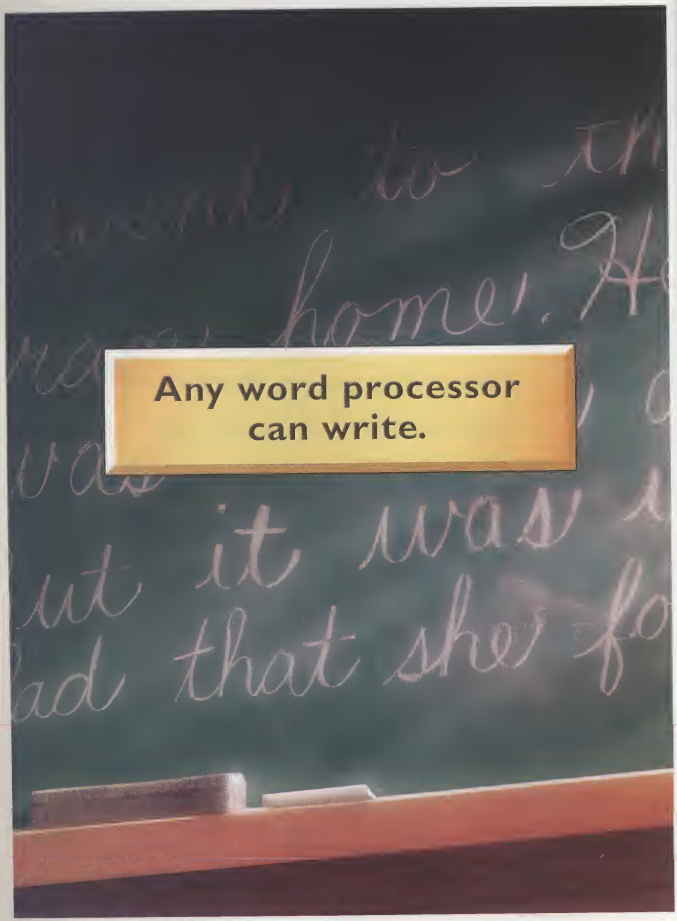

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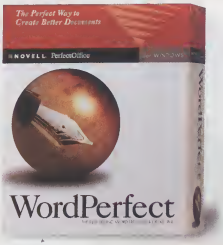

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New! HARDWARE: Simon

Communicate, Organize, Impress

USABILITY: *Typing is tough and scheduling is limited, but the rest is great.* ★★★
TECHNOLOGY: *PC Card, cellular phone, fax, e-mail, and PDA in the palm of your hand, but a hair too short on battery life.* ★★★★
VERDICT: *Indispensable for fax junkies, a toy for everyone else.* ★★★

Everyone has a cellular phone. Many people have little electronic organizers, too. But what else do you need on the road? Fax? Pager? E-mail? If you were to add up everything, you'd be left with two options: a carry-on bag full of gadgets and batteries, or BellSouth's handful of digital tricks, Simon.

Describing Simon isn't simple. It's a large cellular phone with a backlit LCD touchscreen. But it's also a send-and-receive fax machine. It's an electronic organizer with calendar, clock, to-do lists, address books, scheduler, and alarms. But it's also a stylus-based sketch pad. It looks pretty cute, too, until you check out the sticker: $899 list, plus monthly service and usage charges.

To read a fax on Simon's oddly shaped 6-by-2-inch screen, you turn the device sideways and hit a button to scroll the fax. This works fine for short faxes, but it becomes laborious by the third page of longer ones. To type in your own message, Simon displays an onscreen keypad.

Simon Does All: It's large for a cellular phone and enormous for a pager, but Simon fits a PDA, fax machine, clock, e-mail connection, address book, and notepad into the palm of your hand.

Except for somewhat inconvenient typing and a high price, Simon's biggest drawback is that it's simply too appealing. We wanted to rely on it all the time, but we got only 8 hours of juice before needing another recharge—and that was from modest use and 20 minutes on the phone. By four o'clock, we were unable to receive faxes, phone calls, or reminders.

But if you want to impress people at any cost—or you need to receive and send faxes anytime, anywhere—Simon is the gadget for you. MATTHEW LAKE

FILEBOX

Simon

Competition: None (replaces cellular phone, fax, and PDA).

Cellular Fax: Send/receive Group 3 faxes at 9,600 bps.

Communication: Last-ten-numbers redial, paging, cc:Mail send and receive.

PIM Functions: Address book, calendar, scheduler, alarm clock, calculator.

Expansion: PC Card Type II.

$899 list price in BellSouth Cellular markets, $1,099 list price outside of them
BellSouth Cellular Corp.
(800) 746-6672
Reader Service No. 628

ProLinea Net1/33s Model 200/E

Low Maintenance, High Price

USABILITY: *Except for network connections, plug it in and go.* ★★★
PERFORMANCE: *Lags behind other 33MHz 486s.* ★★
TECHNOLOGY: *Tight integration.* ★★★★
VERDICT: *Too steep a price for the power.* ★★

As a network node, Compaq's ProLinea Net1/33s Model 200/E is an administrator's dream because it's easy to set up and maintain. There are no components to assemble and few wires to attach—just plug it in and turn it on. A single case encloses the monitor, motherboard, integrated Ethernet (or Token Ring) adapter, two expansion slots, and power supply, as well as hard and floppy drives. Undo two screws and pull out a slide-mounted shelf to reveal system components—which makes it the easiest-to-repair PC we've seen.

Easy Access: Simply tug on the built-in handle for instant access to the ProLinea's key components.

Although network driver support includes every imaginable NOS, we're puzzled at the lack of an automated network installation routine similar to the bundled backup procedure.

While network managers will love it, users may feel differently. The performance of the 33MHz 486SX model we tested trails that of standard desktop PCs. And although the unit supports graphics resolutions of up to 1,024 by 764, the integrated 14-inch monitor makes any resolution higher than 800 by 600 unusable.

But convenience costs. The Prolinea model we tested lists for $1,738—as much as most 66MHz 486s with 17-inch monitors. CHRIS SANDLUND

FILEBOX

ProLinea Net1/33s

Configuration Tested: 33MHz 486SX, 8MB of RAM, 214MB hard disk.

$1,738 list
Compaq Computer Corp.
(800) 345-1518, (713) 378-8820
Reader Service No. 629

PHOTOGRAPHS BY ARNOLD TIESSLIN

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

Barbara Stump
Network Administrator
Systech Environmental Corporation:

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THE *(color laser printer that's so hot, even the reviews are glowing)* COMPANY

Kyla Carlson, PC Computing

The "first real color laser... The Xerox 4900's output is, in a word, dazzling."

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Bill Gott, Printer Channel Monitor

"...brilliant color quality that will be hard for competitors to beat."

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Frank Hertz, VARBusiness

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Michael Zeis, Color Business Report

Quad dot enables Xerox to convey more real data in n image using the same number of pixels as other pproaches. In the 4900, the combination of laser nodulation and quad dot halftoning result in much higher quality halftones & very fine resolution."

harles LeCompte, The Hard Copy Observer

Charles A. Pesko Ventures, Inc.

"There is currently no better combination of color and black and white laser printing in a single system. Xerox has delivered a powerful product..."

The news is out. The Xerox 4900 Color Laser Printer is so hot no other printer can touch it. Not that everyone else hasn't tried. They found ... as you will too ... our benchmark Quad Dot color imaging technology is unbeatable. And this level of quality has never been more affordable. It's now available at any desktop near you ... the finest quality laser image (up to 1200 x 300 dpi) **Total Satisfaction. Guaranteed.** of any workgroup printer in its class. Period. From speed (5ppm color/12ppm b&w) to ease of everything, the 4900 is one printer that can help everyone in your group do better work. And with the Xerox Total Satisfaction Guarantee, it's the one you can be sure of. Because we'll guarantee your satisfaction for three full years. Call us at 1-800-ASK-XEROX, Ext. 314 for more information and some great samples hot off the printer.

PC Computing MVP 1994 FINALIST

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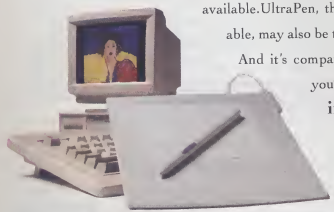
BRING YOUR CRAYONS TO WORK.

ArtPad is a full-featured, high-performance graphics tablet that lets you draw, paint or just plain create, right on your computer.

The Wacom UltraPen

To anyone who's ever thought..."I'm gonna have to draw these guys a picture," here's your chance. From personalized memo's to flow charts to sketches, layouts and logos. Even annotated mail with your pen software. Introducing the Wacom **ArtPad.**™ It's a small and handy, but thoroughly professional graphics tablet from the maker of the world's most critically acclaimed and widely recognized tablets. ArtPad ships complete with the Wacom **UltraPen,**™ the only cordless, batteryless, **pressure-***sensitive* pen available. UltraPen, the most natural computer drawing tool available, may also be the *best way to navigate* on a computer. And it's compatible with just about everything. So, whether you're speeding through a spreadsheet or **adding impact** to *e-mail*, get the Wacom ArtPad. For when you just gotta color outside the lines. For more information on ArtPad or the names of authorized dealers nearest you, please call **1-800-922-6620** dept. 100 today.



Smaller than most mousepads, ArtPad measures only 6 x 7 inches. ArtPad is available in both Macintosh® and PC versions.

WACOM.®

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Circle 111 on reader service card.

New! SOFTWARE: WordPerfect Quattro Pro 6.0 • WordPerfect Presentations 3.0 • Inspiration 4.0 vs. IdeaFisher • Shapeware Visio 3.0 • CogniTech Sharkware Professional 2.0

OS/2 Warp, Version 3

OS/2: This Time, It's Personal

USABILITY: *Play at Will hardware configuration, drag-and-drop applications.* ****
TECHNOLOGY: *Supports all Windows modes, including Win32s.* ****
VERDICT: *A better Windows . . . until 95.* ***

SNEAK PREVIEW

Of course you want a fast, low-maintenance, 32-bit preemptive multitasking operating system. You also want strong applications to run on it. But what's this? You say you want all of this before the middle of next year? In that case, OS/2 Warp, Version 3, is just the thing you're looking for—an industrial-strength operating system and integrated suite of personal applications together in the same box.

The new OS/2 has a slim, speedier kernel, more usable interface features, better handling of Windows applications, and low system requirements—it will actually work on a 4MB 386SX. It's doubtful Windows 95 will ever make that claim.

Better Windows OS/2 Warp, Version 3, does Windows better than ever. Over any Windows 3.1 installation, OS/2 supports all Windows modes, including those that require Microsoft's 32-bit API Win32s. Our testing found that even graphic-intensive applications ran without problems, and at normal speeds. In addition, this operating system enables Windows and OS/2 applications to run on the same desktop side by side. The only drawback is with applications that require VxDs, which OS/2 does not support.

The new OS/2 is also better with hardware than before. It has more video- and sound-card drivers, and there's a point-and-click configuration tool that uses OS/2's new Play at Will interface to provide easy card setup. With this Plug-and-Play look-alike, simply slip in a fax modem and you'll be ready to receive incoming faxes right away.

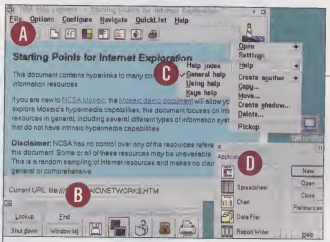
Better Tools With OS/2 Warp, Version 3, the operating system is just the beginning. It comes with a suite of applications called IBM Works, which includes a word processor, spreadsheet, database, PIM, and scheduler—all drag-and-drop enabled. Need to schedule an appointment? Drag your client's information from the phone book into the scheduler and you're set.

There's also a built-in set of Internet access utilities: a native TCP/IP stack, Gopher, FTP, news reader, and mail utilities. An OS/2 version of the popular Mosaic browsing utility is planned, and to round out the I-Way offerings, IBM doubles as an Internet service provider with an access point through its Advantis service.

Other native 32-bit Presentation Manager applications included are Faxworks fax software, Person to Person (a multi-participant whiteboard application), an OS/2 version of the CompuServe Information Manager, and a system interrogator utility that checks on the status of resources.

So whether you look at the new OS/2 as a Works program with the bonus of an operating system or as an operating system with free utilities that outshine Windows 3.x's applets, it's a good deal. If you can't wait for Windows 95, this system offers some of the high points in advance.

SCOTT NAYLOR



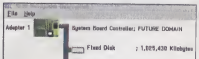
The World According to Warp: OS/2 Warp, Version 3, sports an information tool that interrogates hardware and software on your system so you can troubleshoot, install, and configure all systems and peripherals at will. And it comes with a full suite of applications, including a word processor and spreadsheet.

A. The new OS/2 sports an **Internet Web browser** among other online tools for quick Net contact.

B. Load applications with the **LaunchPad program launcher** instead of clicking through program groups.

C. Need information or access to the desktop? Right-click–enabled **context boxes** get you there.

D. Forget Windows 3.1–style applets. OS/2 packs a robust **works package** with more serious tools than mere PaintBrush and Notepad.



FILEBOX

OS/2 Warp, Version 3

Competition: Windows in all its versions.

System Requirements: 386SX, 4MB of RAM, 35MB to 60MB of disk space, VGA, Microsoft Windows (to run Windows applications).

Bundled Applications: Word processor, spreadsheet, chart builder, database, report writer, Internet Web browser.

Price not yet announced
IBM
(800) 426-7695
Reader Service No. 630

Guide to the Ratings: ***** *Excellent* **** *Good* *** *Acceptable* ** *Poor* * *Unacceptable*

New! SOFTWARE: Quattro Pro 6.0 for Windows

The Easiest Spreadsheet Ever?

USABILITY: *Well thought-out for both new and veteran users.* ★★★½
TECHNOLOGY: *OLE 2 support and an impressive Formula Composer.* ★★★½
VERDICT: *Great features, easy to use.* ★★★★

SNEAK PREVIEW

Any spreadsheet can crunch numbers. But making sure that your data looks good—without you having to spend hours tweaking colors and charts—well, that's a different story.

Quattro Pro 6.0 for Windows makes you look good. And best of all, it's easier to use than ever. Version 6.0 is virtually oozing with improvements. And it's undergone radical menu surgery (part of a larger effort to streamline the applications in WordPerfect's PerfectOffice 3.0 suite): The new menus are better organized, and there are fewer toolbars to contend with.

Stellar Cells Quattro Pro now has a draw layer on each worksheet, which makes it a breeze to add annotations and diagrams to your work. And you'll find a lot of other new knockout features in Quattro Pro: In-cell editing, word wrap within cells, vertical text alignment, and an improved method of generating range names are just some of the additions. And while all spreadsheets have some kind of automatic table formatting, Quattro Pro lets you create and save your own autoformat options.

Quattro Pro's consistent and intuitive interface makes learning the basics a snap. Beginners will find several new Coaches that offer helpful information, and advanced users will appreciate time-saving Experts like the Budget Expert, which helps you create an entire customized budget model complete with formulas and formatting.

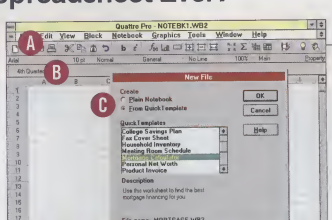
Version 6.0 adds ease of use to the program's already powerful graphics capabilities. In-place graph editing means that you can just click on a graph to make all of the changes you want. You'll also find lots of enhancements to Quattro Pro's impressive presentation slide-show feature, as well as several attractive new charting aids.

@Home The new Formula Composer makes building and debugging formulas a snap. It offers an easy-to-interpret expandable outline format and uses more or less plain English. It gives you quick access to Quattro Pro's nearly 400 @functions.

On a network? Quattro Pro lets you send and receive files and messages directly from your spreadsheet environment. It supports the usual VIM and MAPI or Groupwise e-mail standards, as well as Borland's OBEX (Object Exchange) workgroup technology that uses VIM, MAPI, or MCI mail as a transport for data to another OBEX-supported user. And Quattro Pro now supports OLE 2 as both a client and a server, making interapplication projects easier.

As good as this new version is, a few areas are still lagging. For example, both Excel and 1-2-3 for Windows provide better methods for manipulating worksheet databases, and Quattro Pro has no equivalent of Excel's built-in outlining and automatic subtotal feature.

With a list price of $395, Quattro Pro 6.0 is not the low-priced bargain of earlier versions. However, advanced users will find little lacking in terms of analytical power and development capabilities, and new users can get productive quickly. JOHN WALKENBACH



Better Than Before: With Version 6.0, Quattro Pro takes on a new look in addition to a host of new features. The menus and toolbars have been streamlined to be more consistent with PerfectOffice 3.0.

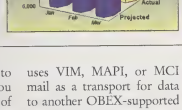
A. New organization of the **menus and toolbars** makes Quattro Pro feel at home in its PerfectOffice suite.

B. With the always-accessible **property band,** Quattro Pro's formatting tools are never more than a mouse click away.

C. When you know the type of data you need, Quattro Pro does the dirty work for you. New **Quick Templates** let you choose the worksheet that best suits your data.

D. Keep your worksheets in line with **colored notebook tabs.** With just a click, you can maneuver between the worksheets in your file.

Chart Your Course: Quattro Pro now features in-place chart editing, several new chart options, and an Adviser to help you select the most effective chart type.



FILEBOX

Quattro Pro 6.0 for Windows

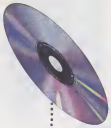
Competition: Excel 5.0 for Windows, Lotus 1-2-3 Release 5 for Windows.

Requirements: Windows 3.1 or higher, 4MB of RAM, 12MB to 23MB of hard-disk space.

New Visual Aids: VCR navigational controls, mouse pointer changes depending on what you've selected, scrollbars show coordinates of row or column you're in.

$395 list
WordPerfect/Novell Applications Group
(800) 321-4566, (801) 225-5000
Reader Service No. 631

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*



Sound BLASTER®

How to make sure your multimedia software talks to your hardware.

Read the fine print on today's game boxes and you'll see the cautionary words *with compatible sound card*. That's because today's hottest games demand the PC sound standard—Sound Blaster.™ Without it, you might get zip. No fantastic effects, no dramatic music, no true-to-life voices. Nothing.

So we've teamed up with the best game designers to ensure 100% Sound Blaster compatibility. Just flip ahead to the following pages. You'll get a good look at some of the richest, liveliest, most-realistic games. And when you see the Sound Blaster logo, you'll know you aren't missing a thing.

CREATIVE
CREATIVE LABS, INC.
MULTIMEDIA IS CREATIVE™

© 1994 Creative Technology Ltd. The Creative Logo and Sound Blaster Logo are registered trademarks and Sound Blaster, Sound Blaster Edutainment CD, Multimedia is Creative, and the Sound Blaster Compatibility Logo are trademarks of Creative Technology Ltd. U.S. inquiries: 1-800-998-5227. International inquiries: Creative Technology Ltd., Singapore, TEL 65-773-0233 FAX 65-773-0353.

Circle 253 on reader software card.

New! SOFTWARE: Presentations 3.0 for Windows

Perfect Your Presentations

USABILITY: *Good, but Show Expert is not very intelligent.* ★★★
TECHNOLOGY: *Easily builds presentation outlines for you.* ★★★
VERDICT: *Decent feature set, but not a leader in any area.* ★★★

SNEAK PREVIEW

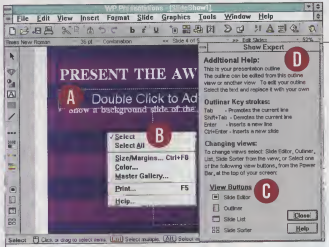
Giving a slide show? Just about any product will make it look good. But to impress your boss and intimidate the competition, you need to focus on the content. You need a product that will help you organize your thoughts and give you advice on what kind of information is best suited for your specific presentation and audience.

WordPerfect's Presentations 3.0 for Windows is built around content. Like PowerPoint and Harvard Graphics, it addresses not only how words and charts will look onscreen and on the printed page, but also what the actual content of the presentation should be.

Adding content to a presentation graphics package is a great idea. Unfortunately, the execution is weak in Presentations 3.0. The suggested content is quite simplistic, and the tools that give you access to this content are a bit awkward.

The centerpiece of Presentations 3.0 is the new Show Expert, which guides you through every step of creating a new presentation. Choose it and tell Presentations 3.0 what kind of presentation you're creating—for example, one that informs, persuades, or teaches. Then choose the kind of audience you'll be facing—such as doubting, negative, or neutral. Presentations 3.0 prebuilds an entire presentation, suggesting the types of slides you should use and the kind of information you should put on each slide. Additionally, a Show Expert window stays onscreen as you work to offer help while you're creating the presentation.

In practice, Show Expert is a bit unsophisticated. Much of what it suggests is simply too obvious to be of much use, even for a novice.



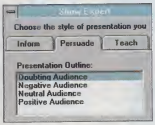
On with the Show: Presentations 3.0's Experts help you focus on the content and organization of a presentation, not just the way individual slides look.

A. You need only double-click on preformatted areas of the **slide template** to create a new slide.

B. A right-mouse click brings up a **context-sensitive menu** that lets you edit the attributes of any object.

C. View Buttons in the Show Expert make it easier to switch to any of four views: Slide Editor, Outliner, Slide List, and Slide Sorter.

D. Need advice creating your presentation? Just ask the **Show Expert.** Keep in mind, though, that it's fairly simplistic.



Choose Your Weapon: The Show Expert offers several options to help you determine what kind of presentation you're going to give—and the type of audience you're going to give it to.

Icing on the Cake There are some nice touches to Presentations, though. It's now mail-enabled, it supports conferencing over a network or modem, and it has other network goodies. There are some extra graphical features as well, such as the capability to emboss and otherwise modify bitmap images. The program even lets you fit text, graphics, and clip art into irregular shapes and add some nice 3-D effects.

With Presentations 3.0, you can now edit text and graphics directly on the slides themselves, which makes for quick-and-easy updates. And if you're upgrading from a competing product, an Upgrade Expert will help make that transition easier. Also, you now have two choices with the online help: Presentations can show you how to do something, or it will go ahead and do it for you.

Ten Coaches are available to guide you through tricky tasks—that is, tasks that take more than a couple of keystrokes to accomplish. For example, you'll find Coaches for things like contouring text and editing a bitmap image.

Where It Lags Despite some nice touches, Presentations 3.0 still falls behind Freelance Graphics and PowerPoint when it comes to creating presentations with elegance and ease. And if you need design advice and hearty charting features, you'd do well to check out Harvard Graphics. But if you're a heavy user of WordPerfect for Windows, you'll find Presentations is worth a close look. PRESTON GRALLA

FILEBOX

Presentations 3.0 for Windows

Competition: Harvard Graphics 3.0 for Windows, Freelance Graphics Release 2.1 for Windows, PowerPoint 4.0 for Windows.

System Requirements: 6MB of RAM, 11MB minimum hard-disk space, 386 or better, Windows 3.1 or higher.

Bonus: OLE 2.0 client and server, mail-enabled via GroupWise 4.1 or any MAPI-compliant e-mail system.

Price not yet announced
WordPerfect/Novell Applications Group
(800) 451-5151, (801) 225-5000
Reader Service No. 632

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

Your clues are hidden in the whispers of floating apparitions. Eerie piano music could be a sign of danger. Warnings come to you through strange murmurs. So, if you want to unravel Old Man Stauf's bizarre secrets, keep your eyes peeled, your

One by one the guests arrive. Then the party really starts howling.

nerves steady, and your ears open. And take this hint—make sure you have a Sound Blaster sound card. Every bone-chilling shriek, hair-raising scream, and breathless gasp in *The 7th Guest*™ seems terrifyingly real when played on a Sound Blaster. Forget about getting out alive without one.

Sound BLASTER

Working together for sound compatibility.

Virgin INTERACTIVE entertainment

TRILOBYTE

CREATIVE CREATIVE LABS, INC. MULTIMEDIA IS CREATIVE

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Circle 254 on reader service card.

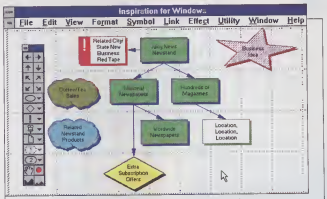
Squeezing Your Creative Juices

When your frazzled brain sputters like a V-8 on two cylinders, don't despair. Believe it or not, your computer can boost your creativity. Both Inspiration Software's Inspiration 4.0 and IdeaFisher System's IdeaFisher can help you break out of frustrating circular thinking.

Map Your Brainstorm Inspiration is a powerful productivity tool, utilizing features and elements from outliners, flowcharters, and automated graphics and presentation applications. Uniquely, Inspiration seamlessly bridges all of these modes, letting you choose the one that works best for you: Brainstorm in one mode, polish your thoughts in another, and communicate your results to the rest of us in yet another.

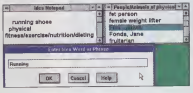
Inspiration's diagramming helps you quickly visualize and record your thoughts and ideas (called *symbols*). For example, type *software review* as a Main Idea symbol, and then connect related symbols such as *evaluate usability* and *weigh feature set*. Inspiration automatically connects them to the Main Idea. Symbols can also be unconnected using Inspiration's Point and Type feature, and with the program's Rapid Fire, graphical symbols appear as quickly as you type them in—perfect for charting a group brainstorming session.

Inspiration is an ideal solution for visualizing, focusing, and organizing your ideas, especially at the start of a new business project when they should be given top priority. Its intelligent diagrams make for great business visuals and presentations, letting you communicate complex information with clarity. Inspiration is an indispensable tool for managers and other business professionals who, for strategic reasons, need an effective idea-mapping application.



You're My Inspiration: Map and organize your ideas and keep the creative process moving with Inspiration's easy-to-use shape and line tools.

Go Fish: IdeaFisher helps you brainstorm on a particular topic by making suggestions.



Netting a Notion IdeaFisher tackles your mental block from a slightly different perspective, applying a highly structured methodology to help you discover creative solutions. After stating the problem or issue you want to explore, IdeaFisher walks you through one of several extensive batteries of canned (but customizable) questions. Along the way, it keeps track of your comments and responses in an online journal. If the process doesn't trigger a full solution, the journal should at least provide you with a number of helpful discussion points.

IdeaFisher is best suited for language-related creative challenges. Many of its question sets focus on linguistic tasks, such as product naming and the development of advertising and promotional materials. Separate business plan, presentation, and grant proposal modules are also available.

IdeaFisher's best feature is its dictionary containing cross-referenced word associations. Pick any two words, and the program will find related words and the underlying connotations they have in common. Need a headline for a software review? Playing around with different options for the target words *software* and *review* or *reviewer* generated lots of not-so-obvious counterpoints, including air-traffic controller, fuzzy logic, H. Ross Perot, and *Terminator 2: Judgment Day*.

A Cure for Angst If you're stuck wrestling with a nasty brain cramp, Inspiration and IdeaFisher both offer suitable solutions that just might rescue you from those stagnant, dull thoughts while graphically organizing your brainstorm. JON ZILBER

Inspiration 4.0

USABILITY: *Mixed modes let you switch between verbal and visual metaphors.* ****
TECHNOLOGY: *Smart automated chart/text creation.* ****
VERDICT: *Worthy contender for anyone who now toggles between multiple applications.* ****

IdeaFisher

USABILITY: *Occasionally cumbersome methodology and terminology.* ***
TECHNOLOGY: *Macros let you add the program as a menu item to several different word processors.* ***
VERDICT: *Unique word-association dictionary is worth the price.* ***

FILEBOX

Inspiration 4.0

System Requirements: Windows 3.1 or higher, 386SX CPU or higher, 4MB of RAM.

Symbols and Shapes: More than 100 predefined, or design and customize your own.

Lines: Dozens, plus Bezier curves and arrows.

582 est. street price (multi-user site licensing available)
Inspiration Software
800-877-4292, (503) 245-9011
Reader Service No. 633

IdeaFisher

System Requirements: Windows 3.0 or higher, 386SX CPU or higher, 2MB of RAM.

Features: Dictionary and thesaurus of thousands of cross-referenced word associations, plus customizable brainstorming interviews.

582 est. street price
IdeaFisher Systems
(800) 289-4332, (714) 474-8111
Reader Service No. 634

Guide to the Ratings: ***** *Excellent* **** *Good* *** *Acceptable* ** *Poor* * *Unacceptable*

Armored warriors ride the wings of flying dragons. Trolls devise a surprise attack. To survive, you'll need to stay alert. And have a Sound Blaster sound card. In *Dragon Lore*, every nuance of battle comes

Between the roaring dragon and the screeching trolls, you can hardly hear yourself think.

to life with synchronized speech and sound effects. Bones crumble beneath your broadsword. A flailing mace rips through chainmail. And you hear it all with Sound Blaster. Just think of it as your most important weapon.

Working together for sound compatibility.

MINDSCAPE
formerly
THE SOFTWARE TOOLWORKS

Circle 255 on reader service card.

© 1994 Cryo Interactive Entertainment. © 1994 The Software Toolworks, Inc. All rights reserved.

New! SOFTWARE: Visio 3.0

Click, Drag, Draw, and You're Done

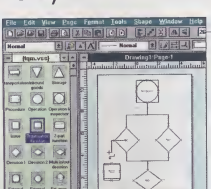
Graphically disinclined but need pictures to explain your point? Visio has been a salvation to many users since its first release, and the new Visio 3.0 is even better.

The basics of the program haven't changed much. It still comes with 22 stencils of commonly used business shapes, including flow charts, organization charts, and network diagrams. Simply drag shapes to the work area, and when you've put enough of them together, you have a business drawing.

Visio 3.0 further simplifies matters by automatically connecting shapes such as the boxes in organization charts: Click on a toolbar button, highlight a shape, drag another shape, and Visio connects them.

Besides being easier to use, Visio 3.0 feels more familiar. Its toolbar can be configured to mimic the look of either Microsoft Office or Lotus's SmartSuite. If you have one of those suites, Visio even installs its own button in your suite's toolbars to launch Visio's OLE 2.0 edit-in-place capabilities.

Visio 3.0 has more graphical power than any of its competitors, and its new suite-integration features make it a natural add-on for anyone who needs to illustrate a point. **DAVID HASKIN**



Connect the Dots: Visio 3.0 adds a key usability feature missing from previous versions—it can now automatically connect shapes in business drawings.

USABILITY: *If it was any friendlier, it would tuck you in at night.* ★★★★
TECHNOLOGY: *Lots of drawing power behind the simplicity.* ★★★
VERDICT: *The best drawing program for dummies, period.* ★★★★

FILEBOX

Visio 3.0

Competition: ABC SnapGraphics, CorelFlow.

System Requirements: OLE-capable Windows systems, 386 or better, 4MB of RAM, VGA or better video, mouse or other pointing device.

$199 est. street price
Shapeware Corp.
(206) 521-4500
Reader Service No. 635

Sharkware Professional 2.0

The Jaws of Contact Management

Like its predatory namesake, CogniTech's Sharkware Professional 2.0 powerfully focuses on a single task—in this case, managing business contacts. It also incorporates strategic advice for business success from expert Harvey Mackay. And Version 2.0 has grown some new competitive teeth, including OLE 2.0, better printing capabilities, and limited e-mail support.

Sharkware's straightforward interface presents basic contact information at the top of each contact record and tabs at the bottom that reveal pending activities, contact history, and a free-form notes field.

As for most of the other basic contact-management features, they work well here but don't stand out from the crowd. Fortunately, the program has thorough personal scheduling capabilities and connects tightly to your word processor.

CogniTech has added limited e-mail support to Sharkware. But it can't serve as an e-mail front end. Instead, it launches your regular MAPI e-mail front end, passing to it the names and e-mail addresses of selected contacts.

Sharkware Professional 2.0 offers desktop power and simplicity over finesse. When it comes to more advanced features and workgroup capabilities, the competition still has the upper fin. **DAVID HASKIN**

Keep Your Contacts in Place: Sharkware Professional 2.0's friendly interface presents basic contact data, while the tabs contain more focused information.

USABILITY: *Easy, self-evident interface is a snap.* ★★★★
TECHNOLOGY: *Lacks networking capabilities.* ★★
VERDICT: *Good for single users who value simplicity over pizzazz.* ★★★

FILEBOX

Sharkware Professional 2.0

Competition: Act!, GoldMine.

CPU Requirements: 386DX (486DX recommended).

Memory Requirements: 4MB of RAM (8MB recommended).

Hard-Disk Footprint: 12MB.

$109 est. street price
CogniTech Corp.
(404) 518-4577
Reader Service No. 636

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

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The new 1200 dpi Optra. It's the first printer of its kind. And another first from Lexmark.

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Circle 161 on reader service card.

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Send anyone custom letters.

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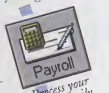

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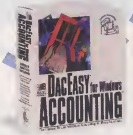

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Circle 125 on reader service card.

New! NETWORKING: ShareVision PC3000

HTML Assistant vs. HotMetal

Internet Publishing Made Easy

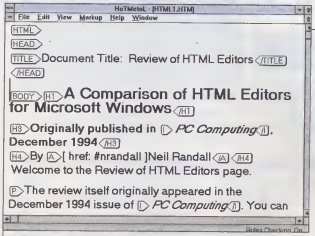
In the multimedia networking arena, very few services are even close to matching the hyperlink prowess of the Internet's World Wide Web. And if you've ever cruised the Web using the MVP Award–winning NCSA Mosaic (see Online Services, page 191), you can already appreciate the ease of use and diversity that the Web provides.

But after awhile, read-only lurking just isn't enough. In other words, you want to publish your own home page. If you have a restless urge to publish and give something back to the Web community, you need a HyperText Markup Language (HTML) editor such as HTML Assistant or HotMetal.

Strange Web We Weave

First, a little technical background: The World Wide Web and HTML are inexorably linked. All Web documents are formatted in HTML, and Web browsers like Mosaic are little more than HTML readers. In fact, this review was converted into a Web document using HTML Assistant and HotMetal. (If you want to check it out, point your Web browser in the direction of http://watarts.uwaterloo.ca/ENGL/nrandall/html_editors.html.)

HTML Assistant and HotMetal save you from the task of manually coding HTML into your documents by placing the necessary codes in the document for you. Simply type what you want using any text editor (Windows' Notepad, for example), then highlight the text and use HTML Assistant or HotMetal to apply the desired format. These tools also help you build links to local files, remote files, and images, and they assist in the creation of fill-in forms.



Calling All World Wide Web Editors: To publish your own home page on the World Wide Web, you need a HyperText Markup Language (HTML) editor like HotMetal (above) or HTML Assistant.

PICKS EASE AND **POWER**

Easy introduction to creating and editing your own Web documents	HTML Assistant
Power user's rich code tool for quick, bug-free Web pages	HotMetal

Freebies Galore Like many Internet-related applications, HTML Assistant and HotMetal are available as freeware (ftp.cs.dal.ca or ftp.ncsa.uiuc.edu, respectively) and as commercial products (see Filebox at right). Just like test-driving a car before you buy it, we recommend that you try the freebies first. Then if you need advanced features and technical support, buy one of the commercial versions.

If you're looking for the easiest route to Web publishing, HTML Assistant is your best choice thanks to its easy-to-use formatting and linking features. Programming purists and experienced Web publishers, on the other hand, will appreciate HotMetal's strict adherence to exact code language.

HTML Assistant is a pleasure to use. It's available as freeware, and recently Brooklyn North Software Works released a commercial version, HTML Assistant Pro. Download the freeware version to find out

HTML Assistant

USABILITY: *Makes your first HTML document a snap.* ****

TECHNOLOGY: *A simple ASCII editor with buttons, weak in some editing features.* ***

VERDICT: *Quick and easy HTML authoring.* ****

HotMetal

USABILITY: *Takes practice, but features become more clear as you work with them.* **

TECHNOLOGY: *3-D tags and rules-checking mechanism are outstanding.* ****

VERDICT: *Not a place to start, but a serious product for high-quality HTML pages.* ***

FILEBOX

HTML Assistant

Features: HTML formatting and linking.

How to Access: Ftp to ftp.cs.dal.ca, look in the directory:/htmlasst/ for the file htmlasst.zip.

Commercial Version: HTML Assistant Pro.

Free, $99 est. street price for the commercial version
Brooklyn North Software Works
(902) 835-2600
Reader Service No. 637

HotMetal

Features: HTML formatting and linking.

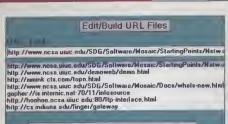
How to access: Ftp to ftp.ncsa.uiuc.edu, look in the directory /Web/html/hotmetal/Windows/ for the file hotmetal.exe.

Commercial Version: HotMetal Pro.

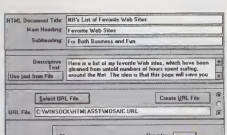
Free, $195 est. street price for the commercial version
SoftQuad
(800) 387-2777, (416) 239-4801
Reader Service No. 638

Guide to the Ratings: ***** *Excellent* **** *Good* *** *Acceptable* ** *Poor* * *Unacceptable*

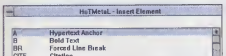
SIDE BY SIDE HOW TO PUBLISH ON THE WORLD WIDE WEB



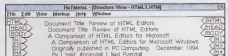
Minding Your URLs: The Edit/Build URL Files feature in HTML Assistant lets you quickly and easily import all your favorite Uniform Resource Locators from your Mosaic or Cello bookmark files.



Creation Made Easy: The WWW Page Creator in HTML Assistant Pro makes initial HTML document creation and building your own home page easy.



Basic HotMetal Elements: Most of HotMetal's HTML commands are contained within the Insert Element box, accessible from the Markup menu.



Windows on the Web: HotMetal's Structure View window lets you pinpoint the exact placement of the current element in an outline-like format that's as straightforward as File Manager.

how deeply you want to get involved with HTML authoring, then upgrade to the commercial release if you need more power, a smoother interface, and technical support.

HTML Assistant makes it easy to apply formatting codes. To create a numbered list, for example, you need only type the listing, highlight it, then press the List button in the freeware version or the numbered-list icon in the Pro edition. The program's customizable User Tools feature establishes your most frequently used commands and includes additional commands for creating objects like forms and clickable maps.

For creating links to other documents, home pages, protocols, and sites on the Net, you won't find an editor that's easier to use than HTML Assistant. Its Link feature is useful, but it becomes indispensable when paired with the capability to import Uniform Resource Locators (URLs) from your Cello bookmark file or your mosaic.ini file. (URLs are pointers to other Web documents.) When building a home page, this capability lets you include links to any of your favorite Web sites.

HTML Assistant Pro takes the idea one step further by offering the WWW Page Creator, a kind of HTML Wizard that automatically generates an HTML page by using the URL information in an existing document. A superb idea, this feature makes even the most complex HTML page creation nearly effortless.

Web Foundry HotMetal, which began life as a Unix package, is available via anonymous ftp from SoftQuad. (The company also offers a commercial version, HotMetal Pro.) While it offers much of the power of HTML Assistant, HotMetal is significantly less sensitive to the needs of novice users, burying many of its commands beneath somewhat unintuitive menu items. Also, it treats HTML as a rigidly structured language. As a result, it insists that documents be coded according to strict formatting rules. In other words, HotMetal is designed precisely for the HTML standard, while HTML Assistant is a more free-form, forgiving editor.

With HotMetal, it's almost certain that you'll get your HTML document correct on the first try, mainly because the program won't let you include elements incorrectly (unless you turn off its rules checking feature, which more or less defeats the program's purpose). With HTML Assistant, on the other hand, you code a little, debug, then see what it looks like, then change what's wrong, then code some more.

HotMetal codes are shown as unusual 3-D tags. While they take some getting used to, these 3-D tags provide one major advantage for authors: Because they're shaped like labeled arrowheads, they make it immediately apparent that HTML codes must be paired. What this means is that HTML structures require both an opening tag and ending tag (a pair). HTML Assistant's 3-D tags make it almost impossible to forget this requirement.

HotMetal's contextual structure windows are designed to let you know precisely where you're currently working in the document. This can be invaluable for long HTML documents because it helps you determine whether or not current codes are complete. If you're creating shorter documents, however, this feature becomes less important.

HotMetal Pro includes a spelling checker, thesaurus, and macro creator, as well as support for tables, protocols, and other advanced HTML features. It even displays in-line graphics files within the editor itself—a nice visual feature and a smart nod to usability.

Wired Wonders Both HotMetal and HTML Assistant are adequate solutions for homegrown publishing on the Web. You can try both programs as freeware, and upgrade to the one you like the best. If you're familiar with programming and code—or you want to establish strict coding standards right from the start—take a good look at HotMetal. But if experimentation and free-flowing programming appeal to your novice instincts, you'll be better served by HTML Assistant. NEIL RANDALL

THIS REPORTER KEPT GOING

DELL'S NOTEBOOK KEEPS GOING AND GOING...
Walter S. Mossberg, *Wall Street Journal, 9/8/94, Personal Technology Section*

"...any serious traveler who uses these portable PCs knows what he or she really wants; a battery that gets decent life, one that lets you use your computer continuously on a six-hour transcontinental flight. All the fancy features in the world aren't worth a damn when the battery dies out over Kansas City and your report won't be done till Philadelphia.

AND GOING

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AND GOING

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AND GOING ON

... the Dell Latitude XP, which still has 19% of its power left as I wrap up this column, 15 hours since the battery was charged."

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intel inside

*Mossberg article reprinted from the Wall Street Journal, copyright 1994, Dow Jones & Co., Inc., all rights reserved. Article references Latitude XP only. †Thus 3-year Limited Warranty consists of Dell's standard return-to-depot warranty during the first year, plus a 2-year parts only contract for years 2 & 3. Also included with these systems is 1 year of next-business-day on-site service. On-site service provided by BancTec Service Corp.; may not be available in certain remote locations. *Guarantees available in the USA only for registered owners of Dell systems. For a complete copy of our Guarantees or Limited Warranties, please call our TechFax™ line at 1-800-950-1329, or write Dell USA L.P. 9505 Arboretum Blvd., Austin, TX 78759-7299. Attention Guarantees. •Prices valid in the U.S. only. Some products and promotions available in the U.S. only. Prices and specifications subject to change without notice. [5]Business leasing arranged by Leasing Group, Inc. The Intel Inside logo is a registered trademark and i486, IntelDX2 and IntelDX4 are trademarks of Intel Corporation. Dell disclaims proprietary interest in the marks and names of others.* *©1994 Dell Computer Corporation. All rights reserved.*

Low-Cost Videoconferencing

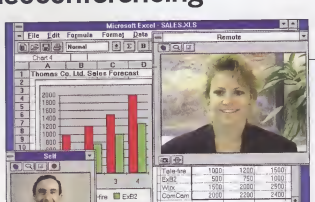
USABILITY: *Intuitive connections and data collaboration.* ***
TECHNOLOGY: *Analog-based for cheap and easy videoconferencing.* ****
VERDICT: *Great for shared whiteboard, decent remote control, tepid video.* ***

To date, we've been distinctly underwhelmed by videoconferencing. In our minds, products that cost a lot, require high-end desktop platforms, demand inaccessible communications infrastructures, and take hours to install should do more than show you a jerky, matchbook-sized image of a remote colleague. Call us crazy, but if we're going to invest all this time and effort, we think there should be a real payoff.

Like other videoconferencing packages we've seen, Creative Technology's ShareVision PC3000 falls short of the up-close-and-personal video quality that we crave. In fact, its video image is noticeably worse than that of Intel's ProShare or AT&T's Vistium. But unlike either of those packages, ShareVision doesn't require you to do battle with your local telephone company over the issue of ISDN installation. Instead, ShareVision gives you the benefits of remote video, audio, and data collaboration over everyday analog telephone lines.

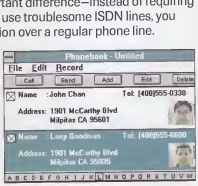
Eye to Eye ShareVision provides everything you need to start videoconferencing in a single box: a Video Blaster board, communications card, camera, integrated headset-and-microphone earpiece, and 28.8Kbps V.34 modem. Installation is fairly simple, but make sure your video card supports Video for Windows and that you're using at least a 66MHz 486 desktop with 16MB of RAM—image quality is going to be spiky enough without bogging it down further with an underpowered machine.

The ShareVision interface, although not as fully integrated as ProShare's single phone-and-control panel, is completely intuitive. And like the ISDN-based packages, ShareVision includes a phone book, shared whiteboard, and support for application sharing.



Seeing-Eye Modems: ShareVision looks and acts like most other videoconferencing packages, but there's one important difference—instead of requiring you to set up and use troublesome ISDN lines, you can run ShareVision over a regular phone line.

Dialing Demons: ShareVision's Phonebook lets you store phone and address information and snapshots.



Sharing an application is a bit cumbersome—you have to launch a program, open a file, then tell the system that you want to share it with a remote user. The whiteboard works like others we've seen: You can capture a screen or import a graphics file for you and a remote user to annotate. You can also transfer files during a ShareVision session. Basically, this is a standard set of data collaboration tools.

What You See Audio and data communications take priority over video in a ShareVision connection, so expect your video image to slow or freeze while you're working on the whiteboard or transferring files. Even when there was no data collaboration underway during our tests, the video image was stop-and-go and grainy. (Creative Technology claims that ShareVision runs video between 8 and 15 frames per second, though our estimation is that it's closer to 6 frames per second.) Also, it routinely took us three or four tries to establish a connection between two ShareVision systems over analog lines, and as is common with modem-based calls, we lost the connection several times during the session. That's one advantage of ISDN over analog lines—once you get them working, the connections are far more reliable.

While ShareVision is about $1,000 cheaper than the ISDN solutions, it's still not cheap. Do the dubious advantages of remote video warrant $1,599 per seat? If you really need full-on videoconferencing, then brace yourself, invest in ISDN, and go with a room-based product from a company like PictureTel. If you want live data collaboration, then you may be better off with a desktop conferencing package like DataBeam's FarSite or Future Labs' TalkShow. But if you have your heart set on cheap videoconferencing, ShareVision PC3000 is the most painless way to go. **SHYAMALA REDDY**

FILEBOX

ShareVision PC3000

Competition: ProShare and Vistium (both ISDN).

System Requirements: 33MHz 486SX, 8MB of RAM (66MHz 486, 16MB of RAM recommended).

Hard-Disk Footprint: 6MB.

Standard Features: Programmable video compression, videoconferencing over analog lines, whiteboard functionality, and remote application sharing.

Bonuses: Video and communications cards, camera, microphone, headset, and modem.

$1,599 est. street price
Creative Technology
(800) 998-1000, (408) 428-6600
Reader Service No. 639

Guide to the Ratings: *****Excellent ****Good ***Acceptable **Poor *Unacceptable

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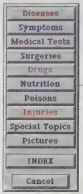

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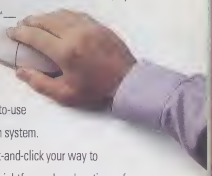

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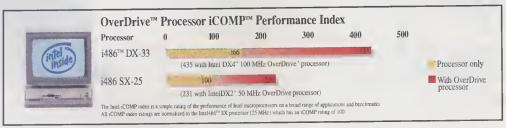

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Logbook LONG-TERM TESTS: Natural Keyboard • Norton Utilities 8.0

Natural-Born Keyboard

Sooner or later, if you make enough cynical comments about ergonomics, you get carpal tunnel syndrome. When it happened to me, all the Mouse Mitts, wrist braces, ergonomic mice, and frequent breaks didn't help. When my non-mouse hand started to tingle and ache, I had to get serious: I had to change my keyboard.

A long-term touch typist like me would sooner change religion than change keyboards. But adopting Microsoft's Natural Keyboard wasn't as big a change as I'd feared. Thumbs neatly over the inverse-T space bar, arms resting right on the split keyboard, it took just ten minutes of typing for me to find the home keys without glancing down—an all-time record for me using a new keyboard.

After several months, however, a few drawbacks remain—in the bottom corners of the keyboard, to be specific. The oversized Alt and Control keys are easy to get at, but I prefer to close windows and Windows applications using the keyboard shortcuts Ctrl-F4 and Alt-F4. Even with my big hands, it's now more of a stretch to do that with one hand—the way I'd always done it before. And I keep hitting the new Windows and Application keys when I go for the right Ctrl or Alt keys. Neither is enabled on my current operating system, but under Windows 95 and applications designed for it, I'm going to get really ticked if I keep accidentally bringing up a task list or closing a window.

Here's another problem: I learned keypad entry during the same semester I learned touch-typing, so I always enter numbers on the numeric keypad. Moving from comfy raised alphanumeric keys to the flat, too-far-to-the-right keypad is a mild but real irritant. More wrist support would be nice. Until then, I think I'll improvise with a few old mouse pads and an X-Acto knife. MATTHEW LAKE

Natural Keyboard / Microsoft / (800) 426-9400 / $99 est. street price / *Reader Service No. 656*

Logbook Entries:

July 8, 1994: *I plug in the keyboard and install the software, then set the system sounds to run whenever I hit a key—it sounds like the old Royal manual I learned touch-typing on. After ten minutes, I turn them off.*

July 25, 1994: *I check the online help for some ergonomic tips. It suggests pulling down the wrist leveler, which raises the front of the keyboard to keep my wrists straight. I hope this will reduce the aching.*

August 15, 1994: *I try replacing the mouse with mouse keys on the numeric keypad, then bag it. I can't give up the keypad, and my wrist needs the mouse's support.*

October 6, 1994: *I add the keyboard to my submotebook. After the submotebook's cramped keys, this is bliss. I resolve to pack the keyboard in my carry-on for the next business trip.*

Logbook Entries:

February 23, 1994: *The beta version impresses me with new features, utilities, and controls. But a pesky setup routine configures the automatic launching of utilities I don't want launched.*

May 14, 1994: *The shipping version fixes the setup problems, but a bug causes File Manager to crash when formatting floppy disks.*

September 1, 1994: *An update, available free on request, fixes the problem and adds full support for Windows for Workgroups 3.11 and MS-DOS 6.22's DriveSpace disk compression utility.*

Seems Like Old Times

For more than a decade, Norton Utilities has been getting me out of jam after jam. In fact, the only PC program I've used longer than Norton Utilities is DOS itself. Version 8 continues in the classic tradition with a killer set of Windows utilities like INI Tuner, INI Advisor, and INI Editor that were previously available only with Norton Desktop.

For people like me who spend a lot of time installing and reviewing beta software, INI Tracker is a lifesaver. It logs all of the changes made to your key system files, including AUTOEXEC.BAT, CONFIG.SYS, and SYSTEM.INI. So when a particularly buggy piece of code cripples my system, I simply skim through INI Tracker's multiple levels of undo to return my files to their original state. It's like having an uninstall-on-the-fly option at my fingertips.

Despite exemplary data recovery and repair features, Version 8 doesn't offer file backup and some of the commands from previous versions. Nor does it have tools found in PC Tools or Norton Desktop. Nonetheless, Symantec has worked out the bugs and included enough data protection and utilities to make Version 8 the latest essential system resource. SCOT FINNIE

Norton Utilities 8.0 / Symantec Corp. / (800) 441-7234 / $99 est. street price / *Reader Service No. 657*

PHOTOGRAPH BY JEFFREY SIPACKNOLI

Imagine having enough disk drive

Typical capacities required for today's systems.

Software:	120 MB (Windows, DOS, Word Proc., Spreadsheets)
User Files:	100 MB or more
Games:	30 MB each
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Total:	Potentially more than 1 GB

Today's powerful desktop computers require more disk capacity for larger, more demanding applications. Like multimedia and video. It's a reality. You need more than 1 GB of capacity on your PC for everything you want to do. Fortunately, Conner has the disk drives to answer your needs.

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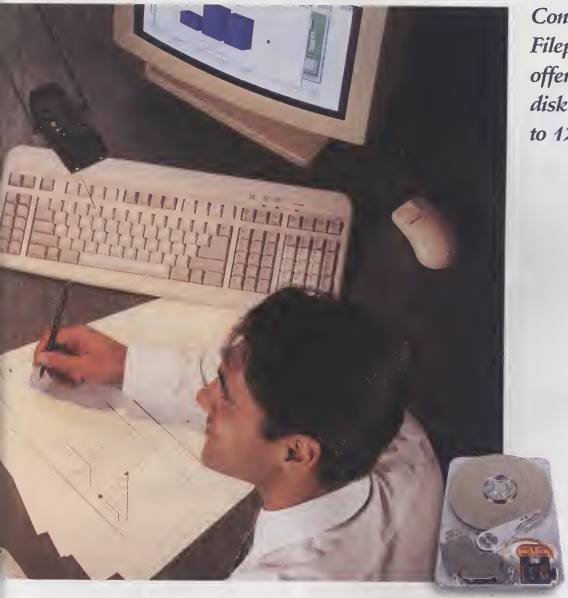
capacity to handle the future.



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The Editors' Choice

SYNOPSIS

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An embarrassment of riches. That's what gets delivered to our offices every day. From the laudable to the laughable, we see it all. Every year we reduce these accumulated impressions into the Most Valuable Product Awards. We devote countless staff meetings to nominating, explaining, arguing, and voting for the products that stand out from the rest. Chosen from the lengthy roster of every computer product available for purchase on or before September 1, 1994, this select list of MVP winners and finalists represents, simply, the best computer products available.

PHOTOGRAPHS BY MARK JOHANN

MVP
PC Computing
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1994
6.0a!
WordPerfect

MVP Systems: Desktop PCs

Technology moves quickly. This time last year, we were bellyaching about the scarcity and cost of Pentium desktop systems. Here we are a mere 365 days later awash in Pentiums that are as cheap as 486s. And while last year we thought VESA local-bus video was the hottest thing since the hard disk, now we see the light—it's PCI. Of course, that's to be expected when you're talking about PCs—each year's systems are faster, cheaper, and smarter than the year before. This year, even the slowest systems in contention for an MVP Award sported zippy 100MHz 486DX4 CPUs. Not only did their performance redefine the standard for desktop systems, but our MVP contenders came superbly outfitted: loads of RAM, dazzling 17-inch monitors with local-bus-driven displays, plus CD-ROM drives, Plug and Play BIOS—the works. While we expected to see Pentiums in force across desktops, we were surprised at the prevalence and relative low price of the 90MHz models—we thought we'd see these only as servers. Instead, all of our Pentium contestants ran at 90MHz, and all of them cost less than $4,000. Such a deal.

MVP DECISION MAKER

Best combination of performance and value	Dell Dimension XPS P90
Impressive speed with great bundled software	Micron PCI Power Station
Awesome multimedia machine at bargain price	Gateway P5-90XL
Switch-hitting PCI/VESA machine for offices	IBM ValuePoint Performance DX4 100

Dimension XPS P90

94

Last year, a Dimension XPS system from Dell was first runner-up in its category, but this year the Dimension XPS P90 claws its way to the top of the heap with a winning combination of blistering performance, a killer video subsystem, and a low, low price. How low? For $3,699, you get a 90MHz Pentium-powered screamer with 16MB of RAM, 1GB hard drive, dual-speed CD-ROM drive with an Enhanced IDE controller, and a total of eight expansion slots, three of which can be used for PCI peripherals. One of those PCI slots is already occupied by the MVP Award finalist 128-bit Number Nine graphics adapter. Sure, we've seen systems that run faster, but not by much. We've seen systems that cost less, but you get what you pay for. Today, nothing beats the price/performance point of the XPS P90.

Dell / (800) 613-3355 / $3,699 / *Reader Service No. 661*

PCI Power Station

This speedy 90MHz Pentium costs only $3,398. That's fully loaded with 16MB of RAM, a 512K cache, fast video, CD drive, and 16-inch monitor. Software's included too—Microsoft Office. It's as close to an office-in-a-box as you can get.

Micron / (800) 438-3343 / $3,398 / *Reader Service No. 662*

Gateway P5-90XL

This beefy machine can do more than muscle through business apps. Gateway also throws in multimedia with the P5-90XL, including a wavetable synthesis sound card and speakers, plus a CD-ROM drive and a standard 1GB hard drive.

Gateway 2000 / (800) 846-2062 / $3,900 / *Reader Service No. 663*

ValuePoint Performance DX4 100

Can't decide between PCI or VESA? Buy a ValuePoint Performance Series DX4 100 machine from IBM, and get your choice of VESA or PCI *and* the option to change later, thanks to a swappable backplane. It's expensive, but worth it.

IBM / (800) 426-7631 / $4,554 / *Reader Service No. 664*

MVP
PIONEER

Any one of these notebook computers could replace your desktop PC. They're lightweight with speedy processors, sparkling displays, extended battery lives, and a better breed of integrated input devices. Two of our contenders—Toshiba's Portégé T3600CT and Dell's new Latitude XP—feature state-of-the-art lithium-ion batteries that last almost twice as long as nickel-metal hydride batteries. Several of the nominated products this year also have built-in sound capabilities and SCSI ports, and in the case of the almost-too-hot-to-touch TravelMate 4000M from Texas Instruments, even a portable CD-ROM docking station. This year's crop of notebooks also herald other design details that we hope will become standard, including integrated AC adapters and simultaneous Type II and Type III PC Card slots for even greater expandability. There's never been a better time to unplug your power cord and take your computer on the lam.

TravelMate 4000M

Texas Instruments packs a host of multimedia extras into its 6.5-pound 75MHz 486DX4 TravelMate 4000M notebook—including built-in sound and a microphone. You can also get a SCSI port to attach the useful CD-ROM docking station.

Texas Instruments / (800) 848-3927 / $4,959 / *Reader Service No. 666*

Latitude XP

Dell re-entered the notebook wars with a bullet this year. The six-pound 100MHz 486DX4 Latitude XP was not only the fastest full-sized 486 notebook our labs have ever seen, but also the longest running, thanks to lithium-ion batteries.

Dell Computer / (800) 613-3355 / $5,099 list / *Reader Service No. 667*

ThinkPad 755C

In many ways IBM's 5.7-pound ThinkPad 755C sets the notebook standard. It has a glorious 10.4-inch active-matrix display, as well as a great full-sized keyboard, complete with the integrated eraserhead pointing device everybody loves.

IBM / (800) 426-7695 / $5,449 / *Reader Service No. 668*

Portégé T3600CT

94

We thought we had seen it all when Toshiba released the groundbreaking, ultralight Portégé T3400CT last year. But this year found us staring slack-jawed and starry-eyed at its big brother, the 4.4-pound Portégé T3600CT. The new sibling packs a more powerful configuration than the original, but fits it in the same tight form factor that made the T3400CT an instant hit with the jet set. Despite its subnotebook size, this machine is all grown up. Powered by a 50MHz 486DX2 SL processor, the T3600CT features a 250MB hard drive and lithium-ion batteries that lasted more than four hours in our tests. Best of all, the new Portégé has a riveting 8.4-inch active-matrix display. It's the best no-compromise ultralight.

Toshiba / (800) 334-3445 / $4,015 / *Reader Service No. 665*

MVP DECISION MAKER

Maximum power and usability in a minimum size	Toshiba Portégé T3600CT
Multimedia wonder with built-in sound and SCSI	Texas Instruments TravelMate 4000M
Fastest 486 portable ever, with battery life to spare	Dell Latitude XP
Best-designed laptop with extraordinary screen	IBM ThinkPad 755C

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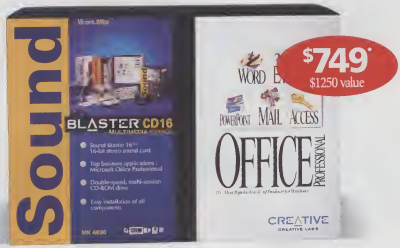

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Circle 134 on reader service card.

Revolution Q-SMP

Twiddling your thumbs while waiting for your database server to update isn't exactly productive. If your server can't keep pace, it's time to change—to ALR's Revolution Q-SMP four-processor Pentium. This system boasts four 90MHz Pentium processors to conquer all databases and applications. It features two full 64-bit buses, one for memory and the other for the CPUs. You can load up the system with gigabytes of storage and up to a gigabyte of RAM. You'll need an industrial-strength network operating system to take advantage of this speedster—but if you have any network apps running on IBM's OS/2, Windows NT Advanced Server, or Unix, the Q-SMP can give them the processing power they really need.

Advanced Logic Research / (800) 444-4257 / $6,495 list / *Reader Service No. 669*

MVP DECISION MAKER

Multiprocessing power for network applications	ALR Revolution Q-SMP
Expandable server architecture for growing LANs	Compaq Rack-Mountable ProLiant
Rock-solid engineering and superior warranty	Hewlett-Packard NetServer LM 4D
The easiest server to set up—a network in a box	Zenith Z-Stor

MVP Systems: Servers

Last year, Pentium systems led the wave in server technology. This year, we saw not just single-processor Pentiums, but dual- and quad-CPU monsters that offer incredible speeds at about the same prices as last year's systems. Advanced Logic Research's Revolution Q-SMP, for example, has enough raw computing horsepower to handle the financial traffic of a small country. Compaq's Rack-Mountable ProLiant lets you manage your servers like a real pro, thanks to its rack-mount design and capable management software. Hewlett-Packard's NetServer LM 4D is your basic fast-as-lightning server, but one built to HP's legendary standards and bundled with an amazing warranty (which you'll probably never need). For smaller workgroups, Zenith offers a low-cost, ultrasimple 486 box preloaded with Novell's Personal NetWare. Plug it into the wall, add a LAN cable, and you're in business.

Rack-Mountable ProLiant

Compaq's new Rack-Mountable ProLiant systems let you plug in a server or storage subsystem whenever you need it. And the Rackbuilder software makes it easy to manage the process. Plus, you get Compaq's terrific service.

Compaq / (800) 345-1518 / From $30,165 list / *Reader Service No. 670*

NetServer LM 4D

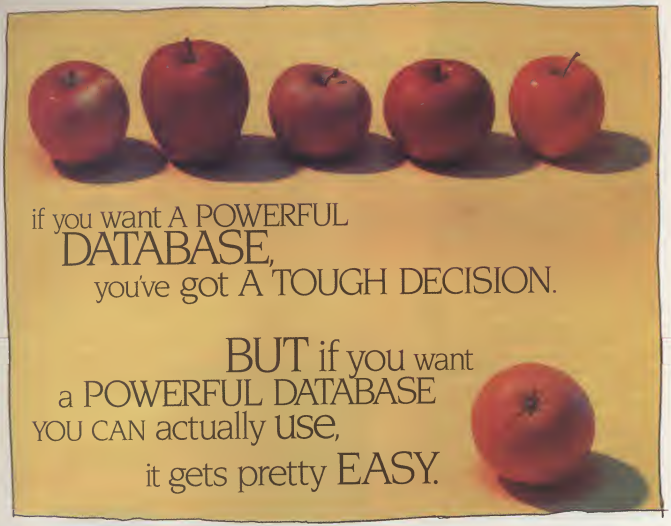
Hewlett-Packard has long set the standard for fast and ultrareliable servers. This year, the NetServer LM 4D continues the streak with Pentium power, HP's traditional overengineering, and the best warranty in the business.

Hewlett-Packard / (800) 752-0900 / $9,589 list / *Reader Service No. 671*

Z-Stor

Don't let your server be your master. If you need to hook up a small workgroup, Zenith's Z-Stor does everything for you. Just plug it in and walk away. You don't even have a screen or keyboard to worry about. Networking doesn't get easier.

Zenith Data Systems / (800) 533-0331 / $1,000 list / *Reader Service No. 672*



What's the difference between apples and oranges? In this case, it's the difference between powerful features and powerful features you can actually use.

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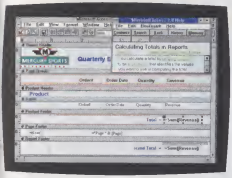
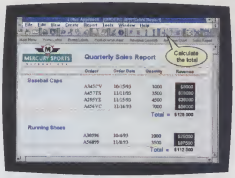


Constructing a report in Access. "Easy"?



Constructing the same report in Approach. Easy.

data. And, the friendly on-line Assistants help to design reports, forms, mailings, analyses and more. Compared to Microsoft Access,® well there's no comparison. As *Infoworld* recently commented, "Approach (3.0) looks like a better choice than Microsoft Access (2.0): easier to use, yet still fast and powerful."†

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MVP Peripherals: Monochrome Printers

Printer buyers have never had it so good. No matter what your demands for high-quality output—speed, low cost, or networkability—there's a printer out there waiting for you. And the 300-dpi quality standard is yesterday's news. While still acceptable for many applications, the hottest products today run at 600 dpi, which is closer to magazine and book quality. Want to share your printing wealth over a network? If so, look for a printer with a direct network connection option. You'll find it on each of our finalists: Hewlett-Packard's LaserJet 4M Plus and LaserJet 4Si MX and the Lexmark IBM LaserPrinter 4039 16L. Top-of-the-line network printers serve up other convenience features as well. You'll be hard-pressed to find one that doesn't support automatic PCL-to-PostScript switching, fast processing, and flexible paper handling. But the features you should demand are automatic port switching, network-protocol switching, and remote bidirectional software management. In addition, your shared printer should be easy to set up and operate, and give you high-end features with plenty of information about where your documents are once you hit the print button.

MVP DECISION MAKER

Great output and networking from the most versatile printer	Hewlett-Packard LaserJet 4M Plus
Ultimate networkability and blinding speed	Hewlett-Packard LaserJet 4Si MX
Best value in a network printer, and it's fast, too	Lexmark IBM LaserPrinter 4039 16L

LaserJet 4M Plus

94

Thanks to its 12-ppm speed and low price, HP's LaserJet 4M Plus screams versatility. It's fast enough to stick on a network, but affordable enough for individual users to buy. The LaserJet 4M Plus comes with HP's JetDirect interface card preinstalled, providing immediate support for Ethernet or LocalTalk LANs running any of several protocols and network operating systems. Setup and management are easy, too. HP's JetPrint and JetAdmin utilities will turn you into a printing pro. And with support for PCL 5, PostScript Level 2, and HP-GL/2, the LaserJet 4M Plus can satisfy even the most fickle users and workgroups. The printer's output quality is excellent, thanks to Resolution Enhancement Technology and 600-dpi output. For high-speed, quality printing, it's the best there is.

Hewlett-Packard / (800) 752-0900 / $2,439 list / *Reader Service No. 680*

LaserJet 4Si MX

When 12 ppm just won't do for your network, look to the LaserJet 4M Plus's larger sibling: HP's LaserJet 4Si MX. It supports two 500-sheet input trays and empties them at 17 ppm with 600-dpi resolution. Not enough for your network? You can add the optional 1,500-sheet paper tray, 2,000-sheet output bin and duplexing module.

Hewlett-Packard / (800) 752-0900 / $5,299 list / *Reader Service No. 681*

LaserPrinter 4039 16L

This is one of the smallest workhorse printers you'll find. With a 16-ppm engine, a 20MHz processor, two standard 500-sheet input trays, and a lower price than HP's LaserJet 4Si MX, the Lexmark IBM LaserPrinter 4039 16L plays for keeps. The 4Si MX has slightly better output, but the Lexmark IBM LaserPrinter 4039 16L is a heck of a value.

Lexmark Int'l. / (800) 358-5835 / $3,339 list / *Reader Service No. 682*

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MVP Peripherals: Color Printers

It's not enough to *be* brilliant. For your work to get noticed, it has to *look* brilliant, which by today's yardstick means printing in color. But there's no single color printer that will meet every need. While a $10,000 dye-sublimation printer will produce positively amazing photographic output, it's not a good choice for documents that are mostly text. A less expensive ink-jet printer might do just fine for a document that contains text and some graphics, but its output won't be striking enough for the Big Show. Fortunately, this was a great year for color. Not only did we see competition in the long-awaited color laser printer arena, but a few ink-jet printers hit the streets with price and performance breakthroughs. To our judges, however, the best combination of high quality and low price can be found in thermal wax-transfer technology, as evidenced by Tektronix's awesome Phaser 220i.

Phaser 220i

94

The most versatile color printer on the market is Tektronix's Phaser 220i. And there's more than one reason why last year's MVP winner is back to reclaim its crown. Most impressive about the Phaser 220i is its low price—just over $5,000. For that, the Phaser 220i gives you everything you could want: speed, quality, and the capability to print on plain paper (keeping your cost-per-page low). The Phaser 220i uses thermal wax-transfer technology and turns out dazzling colors at 600-by-300-dpi resolution. It can print graphics with high levels of detail, as well as rich, smooth backgrounds. It understands PostScript, HP-GL, and PCL 5. The Phaser 220i even handles text well. And to top it off, it can print up to two pages per minute—that's fast for a color printer. It can also exist happily on your NetWare, EtherTalk, or TCP/IP LAN for the small additional cost of a network interface card. Tektronix's Phaser 220i has a near-perfect combination of quality, speed, and features.

Tektronix / (800) 835-6100 / $5,008 / *Reader Service No. 683*

4900 Color Laser Printer

Color laser printers are the wave of the future, and the best color laser printer in this young market is the Xerox 4900 Color Laser Printer. It can print 1,200-by-300-dpi resolution (with the optional 20MB of RAM installed), and it's fast enough to double as a straight text printer at the end of your Ethernet or Token Ring network.

Xerox / (800) 275-9376 / $8,000 / *Reader Service No. 684*

Stylus Color

Talk about pushing the envelope—Epson's Stylus Color is a reasonably priced ink-jet printer capable of output at 720-by-720-dpi resolution. The printouts wowed our judges, and although the Stylus Color needs expensive paper for its highest resolution, it's an outstanding bargain as a personal color printer. It prints text crisply, too.

Epson / (800) 289-3776 / $600

MVP DECISION MAKER

Versatility and high-quality color output on your LAN	Tektronix Phaser 220i
Lightning-fast speed and impressive graphics output	Xerox 4900 Color Laser Printer
No-compromise color and text quality at a low, low price	Epson Stylus Color

If you're responsible for a small or medium-sized network, consider the ALR REVOLUTION MP™. In its base configuration, it's a low cost 100-MHz i486DX4™ powered system. With four 32-bit PCI local bus slots, six 32-bit EISA slots, and room for up to 12-GB of data storage, it offers plenty of room for high speed disk arrays, 32-bit LAN adapters, and other network expansion options. As your network grows, the DX4 processor module can easily be replaced with a 90- or 100-MHz Pentium processor. And when your needs increase even more, you can add a second Pentium processor, converting the Revolution MP into a true, symmetrical dual processing super server!

Quad 100-MHz Pentium MultiProcessing!

As its name suggests, the new ALR Revolution Q-SMP™ is nothing short of revolutionary. Even in its base configuration, this system towers over the competition in both performance and value. By combining fast 90- and 100-MHz Pentium processors with 256-KB of level two write-back cache and our own performance boosting interleaved memory architecture, the Revolution Q-SMP easily clocks over **110 VAX MIPS**.

But that type of power is nothing compared to this system's ultimate potential. Thanks to its unique ALR Q-SMP modular architecture, the Revolution Q-SMP can accommodate up to **four** 90- or 100-MHz Pentium processors. It would take a small room full of 66-MHz i486DX2™ systems to equal this type of symmetrical multiprocessing power! More importantly, the Revolution Q-SMP complies with the newly issued Intel® MP Spec v 1.1™ multiprocessing standard, making it compatible with soon to be released "off-the-shelf" multiprocessing versions of the most popular multiuser/network operating systems.

intel inside pentium

Matching this seemingly boundless processing power is a cavernous double-wide chassis with room for over 14-GB of fully accessible disk storage (over 22-GB with soon-to-be available 2-GB drives). Add 10 EISA expansion slots, three VESA VL local bus extensions, room for up to 1-GB of EDC (Error Detection & Correction) RAM, and our industry leading 5 year/15 month warranty with the first year of on-site service for free*, and you have a server that's nearly impossible to outgrow.

ALR REVOLUTION Q-SMP	COMPAQ® ProLiant™
90-MHz PENTIUM	66-MHz PENTIUM
MAX 4 CPUs	MAX 4 CPUs
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MAX 1-GB RAM	512-MB RAM
EDC/ECC Memory	EDC/ECC Memory
13 Storage Bays	8 Storage Bays
10 Total Slots	7 Total Slots
715 Watts Power	445 Watts Power
$8495 MSRP (1 CPU)	$6562 ESP* (1 CPU)
$22,100 MSRP (4 CPUs)	$35,700 ESP* (4 CPUs)

100 VAX MIPS — 62 VAX MIPS

$6495 MSRP (1 CPU) and $6962 ESP* (1 CPU) represents base model price. $22,100 MSRP (4 CPUs) and $35,700 ESP (4 CPUs) represents a system configuration consisting of 64-MB RAM, 2-GB SCSI ARRAY (8 x 500-MB TEAC CD-Roms and Microsoft® Windows NT™). *ESP (estimated street price) quoted by authorized Compaq® reseller. VAX MIPS based on Dynatech 21

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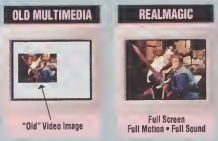

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Circle 217 on reader service card.

FlexScan T2•20

Superbly engineered, Nanao's 20-inch FlexScan T2•20 is the model of usability. Plug it in, power up, and it automatically senses the proper resolution, even synchronizing to 1,280-by-1,024 resolution at a flicker-free 80Hz. Touch the front panel lightly and a menu of onscreen controls appears to guide you through fine-tuning the image. Leave the FlexScan T2•20 unattended for too long (you determine how long is too long), and it powers down to cut electricity costs. The FlexScan T2•20 is also the first monitor to support VESA's new Display Data Channel 2 (DDC2) technology, the new communications channel standard that will allow it to take advantage of Windows 95's full Plug-and-Play hardware features when the operating system upgrade finally ships next year. But here's the best part: The FlexScan T2•20 has a street price of under $2,000, making it one of the most affordable 20-inch displays. If you use a computer for long hours, you deserve this monitor.

Nanao USA / (800) 800-5202 / $1,990 / *Reader Service No. 685*

MVP DECISION MAKER

The last word in image quality at a price you can't ignore	Nanao FlexScan T2•20
State-of-the-art Trinitron display with rich color	Sony Multiscan 20se
Supersharp, ultrahigh resolution for special apps	Nanao FlexScan F780iW

It's been a big year for big displays. The 17-inch monitor became the low-end display for high-end 486 and Pentium-class PCs, while prices on 20- and 21-inch models plummeted by $1,000 or more, enough to make these mondo monitors the best values around. In addition to the finalists here, we saw dozens of products that would have earned honorable mentions if we awarded them: Nokia's $3,225 21-inch Multigraph 445X, which has a 200MHz bandwidth and 1,600-by-1,200 resolution, and RasterOps' bright 21-inch $2,499 ClearVueColor 21 are two that come to mind. And though it didn't meet our deadline for this year's MVPs, NEC wowed us with a preview of its newest MultiSync XP monitors. If you're on a budget (and who isn't?), keep in mind that the winning manufacturers this year also make 17-inch models with features and display quality similar to their bigger siblings.

Multiscan 20se

Designed around the newest 0.30mm Sony Trinitron tube, the 20-inch Multiscan 20se is the best of Sony's displays, delivering rich colors and razor-sharp text. Push-button front-panel digital controls let you tune the image. The monitor also conforms to the Energy Star and VESA power management standards to cut your electric bills.

Sony Electronics / (800) 352-7669 / $2,449 / *Reader Service No. 686*

FlexScan F780iW

This is no ordinary monitor. Nanao's high-end $3,259 FlexScan F780iW shows its true colors at 1,600-by-1,200 pixels, the resolution preferred for detailed image processing and CAD applications. Few graphics cards support this resolution, but for $3,999 you can get the FlexScan F780iW with Matrox's 64-bit MGA graphics card.

Nanao USA / (800) 800-5202 / $3,259 / *Reader Service No. 687*

MVP Peripherals: Graphics Adapters

Twelve months ago, only Matrox offered a 64-bit graphics accelerator; this year, 64-bit boards are the only way to go. At the top of the 64-bit heap are Matrox's MGA Impression Plus, Number Nine's GXe64Pro, ATI's Graphics Pro Turbo, and Diamond's Stealth 64 and Viper SE. They're already turning up as standard options in top-tier systems from Dell, Compaq, and others. But 64-bit accelerators will eventually go the way of the dodo: The first 128-bit video card was just hatched by Number Nine, opening a whole new realm of speed. This year's hottest innovation was Matrox's MGA Impression Plus card with 3-D acceleration. It renders realistic graphics—illustrations, animations, and games—so fast that it puts workstations to shame, yet you can pick one up for a mere $350. Get one of the adapters on this page and watch your PC performance skyrocket.

Imagine-128

Crafted around the company's own chip, Number Nine's Imagine-128 is the first graphics card to rely on a 128-bit data path between the graphics card's controller and onboard graphics memory. The result? The fastest graphics ever. Slip it into a Pentium system and your CPU—not your graphics card—is suddenly the bottleneck.

Number Nine / (800) 438-6463 / $699 4MB, $2,299 8MB / *Reader Service 689*

Graphics Pro Turbo

Driven by ATI's 64-bit Mach64GX graphics chip, the Graphics Pro Turbo puts on a great show. The 4MB VRAM version of the card handles photo-realistic 24-bit color with ease at resolutions as high as 1,280 by 1,024 (the 2MB version can go as high as 1,024 by 768) and refresh rates as high as 100Hz. The product also features plug-and-play setup.

ATI Technologies / (905) 882-2600 / $450 2MB; $650 4MB / *Reader Service 690*

MGA Impression Plus

94

It's only natural that the company that brought us the first 64-bit PC graphics would also have the most highly evolved 64-bit board around. Matrox's MGA Impression Plus not only dazzled us with its blinding speed and excellent video utilities, it's the first card to include real-time 3-D acceleration. The MGA Impression Plus is also first-rate in the bread-and-butter categories like resolution and color depth: Its 4MB version supports 1,280-by-1,024 pixels in 16.7 million colors at flicker-free refresh rates. And it's multimedia-friendly, with support for Video-Logic's PowerPlay 64 video accelerator chip, a $99 upgrade that gives you smooth, TV-quality video playback on top of its already speedy graphics. If you have the monitor to support it, the board even revs up to 1,600-by-1,200 pixels. It's the MGA Impression Plus's combination of sophistication and down-to-earth street price that wins it our MVP Award this year.

Matrox / (514) 685-2630 / $349 2MB, $699 4MB / *Reader Service No. 688*

MVP DECISION MAKER

High-resolution 64-bit graphics and multimedia power	Matrox MGA Impression Plus
Simply the fastest video card you can buy today	Number Nine Imagine-128
Speedy 64-bit graphics with switchless plug and play	ATI Technologies Graphics Pro Turbo

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Windows Magazine
November 1994

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There comes a time when we all run out of space for our stuff. For most of us, the solution is to move into a bigger place—and start collecting more stuff. Computers are the same: Run out of room on the hard disk? Get a new one. In our quest to find the perfect home for ever-expanding data, we found a world of fast, innovative products. Both smaller (in physical size) and bigger (in capacity), this year's storage options are amazing. We narrowed the field to a dozen products before choosing our finalists. They are a diverse set of solutions to all kinds of storage needs. From Western Digital's low-cost-per-megabyte Caviar AC31000 drive, to the quick access to CD-ROM data possible with Plextor's 4PleX, to TapeDisk's incredibly useful TapeDisk utility, these products all provide the elbow room your applications need to run comfortably.

Caviar AC31000

94

This drive packs a lot of data in a little package. How much? One gigabyte. How little? A 3.5-inch drive that's barely 1 inch high. This little powerhouse utilizes Western Digital's Enhanced IDE technology to maximize capacity and performance. Enhanced IDE also lets you partition this drive as a single massive volume (getting around the 528MB limit imposed by most older systems' BIOS programming). Strap one of these drives onto a PCI or VL-bus with your new controller and forget about your performance woes. With the access speed of a SCSI drive, ease of installation second to none (thanks again to Enhanced IDE), and a cost that will have you wondering if somebody dropped a few zeros from its price, this is the best all-around storage solution you can buy. It's so small and inexpensive, you might just want to pick up a carton of Caviars, for all the folks in your office crying for more storage. It's a cheap and easy way to make new friends.

Western Digital / (800) 228 6488 / $499 / *Reader Service No. 691*

TapeDisk

With TapeDisk's TapeDisk utility, you can tap into your tape drive's potential and turn it into gigabytes of low-cost removable storage that looks like a hard drive to any application. Or you can use TapeDisk's high-speed X-Copy utility to quickly back up your hard drive to tape.This is the most versatile storage solution you can get.

TapeDisk Corp. / (800) 827-3372 / $249 / *Reader Service No. 692*

4PleX

Rely on Plextor's new 4PleX quad-speed CD-ROM drive when you need your data in a hurry. This new CD-ROM drive comes in both internal and external models and delivers quad-speed performance at a very affordable price. A SCSI-2 drive, the 4PleX is compatible with most operating systems and computers, as well as major CD-ROM formats.

Plextor / (800) 886-3935 / $499 internal / *Reader Service No. 693*

MVP DECISION MAKER

High-capacity, fast storage for an unbelievably low price	Western Digital Caviar AC31000
Lots of low-cost, removable storage that's easy to use	TapeDisk
Best bargain on a super-fast quad-speed CD-ROM drive	Plextor 4PleX

Ron Kimball Photography

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The network nightmare: 50 hostile users who can't get to their data because a drive failed. Or worse: a CEO who can't save his spreadsheet because someone in purchasing just took up the last megabyte of disk space. Networks need hulking masses of fast, reliable storage. RAID solutions such as those offered by Mega Drive provide the capacity and speed you get with parallel drives. CD-ROM servers like Logicraft's LS4500 mean your users don't have to shuffle CDs like teenagers in front of a stereo. And large (and we mean *large*) drives such as Seagate's Elite 9 Disk Drive keep even the most space-hungry users satisfied. This year's server selections let you economically add the one thing to your network that you never seem to have enough of—storage capacity. So while we used to think that you could never have too much storage, now we're not so sure.

Logicraft LS4500

Logicraft takes the pain out of attaching CD-ROMs to the network. Its LS4500 combines a 50MHz 486-based EISA PC, Toshiba's 3401 CD-ROM drives, and software to link this all together. For network access to the wealth of reference material now available on CD-ROM, there's no slicker solution.

Logicraft / (603) 880-0300 / $15,500 /
Reader Service No. 693

Elite 9 Disk Drive

Do you prefer the simple, brute-force approach to network storage? Install this 9GB monster in your server. Seagate's Elite 9 Disk Drive mounts in a single full-height slot. With 5,400-rpm spindle speed, 1,024K of onboard cache, and a 20-megabyte-per-second transfer rate, this is one of the fastest drives we've seen. And it's cheap.

Seagate / (408) 438-6550 / $4,499 /
Reader Service No. 696

MR 5-8-X Array

94

The ultimate in reliable network storage, Mega Drive's MR 5-8-X RAID Disk Array provides excellent performance and features. Its arrayed drives are supported by an Intel i960 RISC processor with up to 128MB of onboard cache and a Fast-Wide SCSI-2 connection. This juggernaut can handle any type of data you throw at it, from full-motion video to mission-critical database applications. The MR 5-8-X Array's suspension system nullifies the effects of vibration and decreases the chance that a physical shock will destroy data. Instead of internal cables, the array uses a single backplane to connect the drives, which makes the connection more reliable while increasing performance. In case of failure, the array can page you on your beeper, and it lets you hot-swap not just the drives, but fans and power supplies, too. The MR 5-8-X Array can be configured with up to 20GB of storage and a built-in tape backup unit. Its onboard LCD screen makes setup and maintenance simple.

Mega Drive / (310) 247-0006 / $24,000 /
Reader Service No. 694

MVP DECISION MAKER

Ultrareliable, manageable storage—and lots of it	Mega Drive MR 5-8-X RAID Disk Array
Network access to CD-ROM information for LAN users	Logicraft LS4500
Biggest disk drive made for servers, with low cost per MB	Seagate Elite 9 Disk Drive

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Compaq Deskpro® XL 560

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*Or $130 per month**

Introducing a new level of performance and flexibility. With both PCI and EISA slots plus integrated 32-bit PCI Ethernet and Fast SCSI-2. Configures as either a desktop or tower.

Deskpro XL Features:

Pentium™ 60MHz Processor (other models available)
◆
8MB RAM (expandable to 136MB)
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◆
3.5" 1.44MB Diskette Drive
◆
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◆
1024 Color Monitor (1024 x 768, NI)
◆
Vocalyst™ Keyboard with built-in speaker and microphone
◆
Ethernet and SCSI-2 Controller
◆
Preinstalled MS-DOS® 6, MS-Windows™ 3.1, TabWorks®, and Network Interface Drivers

Compaq Deskpro XE 466

$2,249
*Or $80 per month**

You couldn't ask for more in a business PC. From powerful processors to QVision Local Bus Graphics and enhanced audio, it offers some of today's latest technology.

Deskpro XE Features:

486DX2/66 Processor (others available, including Pentium)
◆
8MB RAM (expandable to 32MB)
◆
270MB Hard Drive
◆
3.5" 1.44MB Diskette Drive
◆
QVision Local Bus Graphics with 1MB VRAM
◆
SVGA Color Monitor (1024 x 768)
◆
Enhanced audio capabilities and Microphone
◆
Preinstalled MS-DOS 6, MS-Windows 3.1, MS-Windows Sound System software, and TabWorks

Compaq LTE Elite™ 4/40CX

$3,899
*Or $138 per month**

Our new high-performance notebook is equally at home on the road or on your desk, especially with the optional SmartStation™. The AC adapter is built-in to reduce carrying weight. You have your choice of displays, removable hard drives, and processors.

LTE Elite Features:

486DX2/40 Processor (other models available)
◆
4MB RAM (expandable to 20MB)
◆
170MB Removable Hard Drive (340MB available)
◆
Two PCMCIA Type II slots (or one Type III)
◆
3.5" 1.44MB Diskette Drive
◆
Color VGA TFT Display
◆
Local Bus Graphics
◆
Built-in AC Adapter and Trackball
◆
Preinstalled MS-DOS 6, MS-Windows 3.1, TabWorks, and Microsoft® Video for Windows (Runtime)

intel inside

*Leasing is provided by GE Capital Services for a term of 36 months and is subject to approved credit and certain terms and conditions. Call for details. †Restrictions and exclusions apply. Monitors, battery packs and certain options are covered by a One-Year Warranty. Compaq Contura Aero, Contura 400, and LTE Elite are covered by a 3-Year Pick-Up Warranty. ©1994 Compaq Computer Corporation. All rights reserved. Compaq and the Compaq Logo Registered U.S. Patent and Trademark Office. Contura and Deskpro are registered trademarks; DirectPlus is a registered service mark; and Aero, QVision, Vocalyst, SmartStation, LTE Elite, and EasyPoint are trademarks of Compaq Computer Corporation. Products, prices and programs are subject to change without notice. Other products are trademarks or registered trademarks of their respective companies. Microsoft and MS-DOS are registered trademarks, and Windows is a trademark of Microsoft Corporation. TabWorks is a registered trademark of Xerox Corporation. The Intel Inside Logo is a registered trademark and Pentium is a trademark of Intel Corporation. Offer available in the U.S. only.

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DELICATE BALANCE OF SELECTION AND VALUE.

Compaq Contura® Aero™

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Weighing in at a mere 3.5 lbs., the Contura Aero makes the perfect traveling companion. Though lightweight, it's packed with features you'd never expect in a PC this small, including a 486 processor, a PCMCIA Type II slot, and an integrated trackball.

Aero Features:

Only 3.5 lbs. and 10.25" x 7.5" x 1.5"
◆
486SX/25 Processor
◆
4MB RAM (expandable to 12MB)
◆
170MB Hard Drive
◆
Monochrome Backlit VGA Display
◆
Integrated Compaq EasyPoint™ Trackball
◆
PCMCIA Type II slot
◆
NiMH Battery & AC Adapter
◆
Preinstalled MS-DOS 6, MS-Windows 3.1, and TabWorks

New Compaq Contura 400C

Contura 400C Features:

486DX2/40MHz Processor
◆
4MB RAM (expandable to 20MB)
◆
250MB Hard Drive
◆
Two PCMCIA Type II slots (or one Type III)
◆
3.5" 1.44MB Diskette Drive
◆
Color Dual Scan Display (Color TFT available)
◆
Integrated Trackball
◆
Only 5.9 lbs.
◆
Preinstalled MS-DOS 6, MS-Windows 3.1, TabWorks, and Lotus Organizer

The new Compaq Contura 400C is an affordable, lightweight color notebook that's packed with practical features such as an integrated centered trackball, convenient wall-mount AC adapter, tilting full-function keyboard, PCMCIA slots, a clip-on carrying handle, and optional docking base.

$2,599

*Or $92 per month**

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Circle 273 on reader service card.

What makes a PC a multimedia PC? The Multimedia PC Marketing Council has a clinical explanation (486SX CPU, 8MB of RAM, dual-speed CD-ROM, and so forth), but our answer is more visceral: beautiful music, gut-wrenching sound, sparkling video. This year's MVP finalists in multimedia hardware do more than bring basic multimedia capabilities to PCs. The products here expand multimedia's horizons, either through superior quality of playback or the flexibility to take your show on the road. In a sound card, for example, it's not enough to just play sounds—we want stereo enhancement, a text-to-speech synthesizer for reading documents, and top-shelf software. And we didn't stop with products that give only the end user multimedia capabilities—in our minds, if you're going to use multimedia, you might as well share it.

Desktop Projector 2800

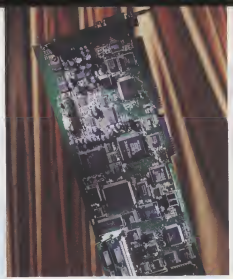
Seen enough PC presentations bomb because the audio-visual portion wasn't up to snuff? Proxima's Desktop Projector 2800 is your salvation. Its tungsten halogen lamp projects 2 million colors from a 16-million-color palette, and its built-in speakers face the audience and blast out the audio portion of your pitch.

Proxima / (619) 457-5500 / $8,995 list / *Reader Service No. 698*

Z-Player

This two-pound CD-ROM drive incorporates small stereo speakers, a headphone jack, a condenser microphone, and audio CD controls. Just plug the Z-Player in to a PC Card Type II slot and your laptop becomes a multimedia monster. And when you're done working, slip on the 'phones and listen to your favorite audio CDs.

Zenith Data Systems / (800) 553-0331 / $499 list / *Reader Service No. 699*



Sound Blaster AWE32

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No ordinary sound card, the Sound Blaster AWE32 adds QSound to widen and enhance the stereo effects of sounds. The card's programmable DSP can use "sound fonts" of sampled sounds to increase its repertoire, and the hardware can shrink voice files down to as little as one-tenth their original size using two-level FastSpeech compression. Plus, the Sound Blaster crams 32-voice polyphony into its MIDI channels—which is a technical way of saying it sounds *great*. The Sound Blaster AWE32 has Creative Labs' suite of sound playback and editing software that does the job with admirable simplicity—and the addition of sequencer Cakewalk Apprentice and the presentation program HSC Interactive SE rounds out the bundle nicely. The included DECtalk will also read your files to you. And of course, the Sound Blaster AWE32 is compatible with software written for older Sound Blasters, so it will work with anything, from Windows to Doom.

Creative Labs / (800) 998-5227 / $299 list / *Reader Service No. 697*

MVP DECISION MAKER

Best-sounding sound card with useful software included	Creative Labs Sound Blaster AWE32
A stunning and lightweight sound-enabled projector	Proxima Desktop Projector 2800
A plug-and-play CD-ROM and sound solution for laptops	Zenith Data Systems Z-Player

THERE ARE A NUMBER OF AFFORDABLE PRINTERS THAT

PRODUCE LASER-QUALITY IMAGES IN BLACK AND WHITE.

This SHOULD BREAK THE PATTERN.

With the new Canon® BJC®4000, you can now get superior-quality black and white performance, as well as color, without having to break the bank. Its standout performance includes laser-sharp 720 x 360 dpi in monochrome. A five page per minute print speed. And vibrant 360 dpi in color. For more information or your nearest Canon dealer call 1-800-848-4123.

Canon

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MVP Peripherals: Character Input

Before your computer can do the amazing things it does, it needs your input—your text, numbers, thoughts, and ideas. You spend a lot of time entering characters, one at a time, into your PC. Shouldn't you spend some time thinking about a better way to do this? We did. We looked at dozens of keyboards, a roundup of mice, and the newest character scanners in order to come up with this year's finalists. Keyboards are key: Most PCs come with cheap, spongy numbers. You deserve better. Check out Lexmark and Microsoft for the best character input devices your can lay your fingers on. And for entering data already stored on temporary cellulose transmission matter (paper), look into a scanner. The best scanners are fast, support OCR, and are easy to use. Visioneer's PaperMax scanner, in fact, is so easy that we wonder how we ever managed without it.

Classic Touch Keyboard

OK, mouse haters, we have a keyboard for you. Lexmark, a spin-off of IBM, has taken one of those little eraserhead pointing devices found on IBM notebooks and put it on the home row of one of their Classic Touch keyboards. Here's another great feature: The company put a backspace/erase key right next to the space bar.

Lexmark Int'l. / (800) 438-2468 / $140 list / *Reader Service No. 701*

Natural Keyboard

Sure it looks funny, and yes, it takes some getting used to, but we bet you'll love Microsoft's Natural Keyboard if you give it a chance. Aside from a unique ergonomic design that decreases strain on hands, wrists, and shoulders, the Natural Keyboard makes Windows easier to use through clever software and special Windows keys.

Microsoft / (800) 426-9400 / $99 list / *Reader Service No. 702*

PaperMax

94

Think the paperless office is just a pipe dream? Not so anymore—Visioneer's PaperMax hardware-and-software package will get rid of your piles of pages in no time. Simply take your faxes, memos, and expense reports, and scan them in. And talk about usability—the PaperMax doesn't even have a power switch. You just feed a sheet in, and it nabs the paper from your hand like a soda machine taking your dollar (it handles everything from legal-sized paper down to business cards). Then the MaxMate software pops up and lets you file your document, run OCR on it (sorry, OCR software not included), or send it via e-mail or fax. MaxMate lets you pile your documents onscreen the way you lump them on your desk, but with the addition of a suite of search tools to find what you're looking for. Installation is quick. Unlike some scanners, there's no need for a proprietary board connector—it plugs right in to your serial port.

Visioneer / (800) 787-7007 / $499 list / *Reader Service No. 700*

MVP DECISION MAKER

The shortest, most usable path to a paperless office	Visioneer PaperMax
The best-feeling standard keyboard	Lexmark Classic Touch Keyboard
The first ergonomic keyboard that really works	Microsoft Natural Keyboard

NOW THERE'S A REMOTE COMPUTING PACKAGE THAT RUNS LAPS AROUND LAPLINK.

Are you one of the millions of mobile computing types who are happily running LapLink™?

Well, get ready to move over.

If anyone can take the effort out of remote control, it's Traveling Software.

Because now the world's favorite file transfer package is even faster, even more reliable and, get this, even integrates remote control.

What's that, you say? Remote control and easy-to-use don't happen in the same box?

You'd better look at this one.

Our new graphical interface takes shameless advantage of Windows,™ with push-button toolbars – like the handy LinkBar™ you see at the top of this page – drag and drop functionality and plenty of online HELP.

Which is something you'll need very little of when you're using remote control to run applications and access files and resources back at the office.

If you like being productive, you'll love how LapLink for Windows – and *only* LapLink for Windows – lets you transfer files in one window while you use remote control to, say, read your e-mail in another.

But you'd better read fast, because our ingenious new SpeedSync™ transfers only the bytes you've changed, cutting your transfer time – and your phone bills – by up to 80%.

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We'll tell you all about our new security features, NetWare® support, extensive modem and PCMCIA support and, best of all, our irresistible upgrade offer.

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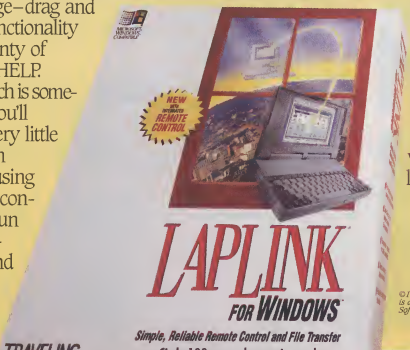
So you can watch us do our laps.



Circle 188 on reader service card.

TRAVELING SOFTWARE

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VISIT US AT COMDEX BOOTH H612

MVP Peripherals: Graphical Input

Need to get some pictures into your report but don't have time to wrestle with the typical scanner's jumper blocks, dip switches, and IRQs? Rejoice: Today, setting up a scanner is simply a matter of sliding a board into an open slot and installing some software. Even low-cost scanners now support 24-bit color, and 30- and 36-bit models are becoming affordable. Our MVP finalists are standards-based so they'll work with almost any software, but most come with capable image editors anyway. (The best software—Ofoto 2.0—even compensates for human error by automatically straightening images that were placed askew on the scan bed.) Sometimes, though, you need to scan images that don't lie flat. For these, check out Apple's affordable QuickTake 100—an ultraslick computer camera that even a novice can use to snap photos for reports and presentations.

ScanJet IIcx

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This scanner is what color scanning is all about—speedy scans, great ease of use, and slick installation. Hewlett-Packard's ScanJet IIcx won our Best 200 scanner award in June, and there's still nothing that can touch its price and performance combination. Not only does it provide rich, vivid, 400-dpi scans (with an interpolated resolution of 1,600 dpi) that are remarkably true to the originals, it's also one of the fastest scanners around. It provides top-notch grayscale imaging with very fine detail. And thanks to HP's AccuPage 2.0 technology, the ScanJet IIcx can pick up even minuscule fonts and text from colored or stained backgrounds amazingly well. For graphics, the package includes Aldus's PhotoStyler SE, which lets you fine-tune the image before scanning and offers great post-scan editing features. The ScanJet IIcx's power and its simple SCSI card installation—no jumpers or addresses to set—make it by far the most valuable scanner around.

Hewlett-Packard / (800) 722-6538 / $999 /
Reader Service No. 703

QuickTake 100

When your subjects don't lie flat or hold still, you need a digital camera like Apple's QuickTake 100. Just point and shoot to capture images at 640-by-480 pixels in 24-bit color. And to transfer them to your PC, just plug a serial cable into the camera and run the included Windows software. This is the digital camera for the rest of us.

Apple Computer / (800) 538-9696 / $749 /
Reader Service No. 704

Canon IX-4015

Easy scanning at an easy price: Canon's IX-4015 produces clear, crisp 24-bit color scans at resolutions of 400-by-800 dpi. What sets the Canon apart is usability: The bundled Ofoto 2.0 scanning software makes page scanning nearly goof-proof—with a click of the Autoscan button, you're on your way to a perfect scan.

Canon / (800) 848-4123 / $899 /
Reader Service No. 705

MVP DECISION MAKER

Unmatched scan quality and ease, on the cheap	Hewlett-Packard ScanJet IIcx
Best and most fun way to get photos into your PC	Apple QuickTake 100
Most goof-proof scanner ever, with great color support	Canon IX-4015

We Mean Business.

Price and performance are key factors when making business buying decisions. Perhaps that explains why Corporate 1000 companies are making the move to the ViewSonic 15G monitor. This new 15" monitor (13.9" diagonal viewable area) is an extraordinary value with features normally available only on large, expensive models.

Talking about business, we developed this 15" monitor to be *the* answer for your display requirements. The multifrequency ViewSonic 15G features a flat square screen, a fine 0.28mm dot pitch and special coating to reduce glare and reflection. It also has a unique digital control system which adjusts screen size, position and geometry. Plus, it offers a special tilt control to precisely align the image, and our ViewMatch™ for matching screen color to printer output.

Combining its intense colors and sharp, crisp images, this high performance monitor also delivers resolution up to 1,280 x 1,024. Your employees will appreciate the superb quality of the monitor, while your accountant will appreciate the price!

In keeping with today's concern for the environment, the ViewSonic 15G is both low radiation MPR-II and EPA Energy Star compliant. This monitor powers down to under 5 watts when inactive, which saves energy and lowers your electric bill.

Successful business people are savvy buyers – that's why they're rushing out to buy the ViewSonic 15G . . . they See The Difference!

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Call FaxSonic at (909) 869-7318 (fax-on-demand)
Request Doc. 146 (15G)
Applelink: VIEWSONIC Compuserve: 73374, 514

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ViewSonic 17

ViewSonic 17

July 1993

ViewSonic 21

April 1994

ViewSonic 17

January 1994
ViewSonic 17

Finalist
ViewSonic 17

Circle 170 on reader service card.

MVP Peripherals: Modems

These days a PC is more than personal—it's a window onto the world of commerce, culture, and communication. But to take advantage of the virtual world beyond your desktop you need that most mundane of all peripherals, the modem. Did we say mundane? That's how we used to think about modems when they chugged along at 9,600 bits per second (bps) and even 14.4 kilobits per second (Kbps). Today's high-speed 28.8Kbps modems enable a whole range of uses that we never thought would be viable over regular phone lines, such as fully graphical online services, videoconferencing, and true remote computing. It's not surprising that our MVP finalists include a variety of modem incarnations, from the desktop do-it-all to a highly portable wireless model. But don't try to choose between them. In today's roving, far-flung business landscape, you'll need them all.

Courier V.Everything

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Fed up with trying to decode the alphanumeric soup of modem standards? Well, we've got one more vee-dot contender to add to your list, but with any luck this will be the last and only one you'll have to learn: V.Everything. What could be easier to remember—or use? With its Universal Connect feature, the V.Everything supports multiple modem protocols, including V.32, V.32bis, V.32terbo, and even the amorphous 28.8Kbps V.FC protocol that became popular while we waited for the V.34 standard to become final. For today's graphics-intensive online services like the World Wide Web, you need the speed the Courier V.Everything offers. But it isn't stuck in today's standards: Thanks to Texas Instruments' DSP, this modem can be reconfigured to any new standard with a simple flash ROM upgrade. Since it's just a matter of time before we're tempted with an even higher speed modem standard, this upgradability is the best reason to buy the Courier V.Everything.

U.S. Robotics / (800) 342-5877 / $595 list / *Reader Service No. 706*

LanRover/Plus/E 3.0

Whoever said that you can't be all things to all people never saw the LanRover/Plus/E 3.0. This networkable communication server can be equipped with integrated modems and ISDN support. Use it as a remote access server for a roving sales force or as a LAN-to-LAN router for branch-office connectivity.

Shiva / (800) 458-3550 / $4,299 to $8,499 list, depending on configuration / *Reader Service No. 707*

KeepInTouch

For true ubiquity, look no further than AT&T's KeepInTouch (KIT), which gives you both a 14.4Kbps fax modem and a cellular modem in one. Unlike most cellular modems that work only with one phone, the KIT card supports over 40 models, so you can stay connected from office to airplane, and from car to hotel.

AT&T Paradyne / (800) 482-3333 / $349 list / *Reader Service No. 708*

MVP DECISION MAKER

The fastest, most compatible modem there is	U.S. Robotics Courier V.Everything
Best modem solution for networked offices	Shiva LanRover/Plus/E 3.0
The ultimate in versatile communication for portables	AT&T Paradyne KeepInTouch

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For the Easiest and Most Reliable Backup Software, Millions Come to Colorado.

Introducing Colorado Backup for Windows 2.0 Tape Backup and Archival software from Colorado Memory Systems, the leader in tape backup solutions.

Since 1990, Colorado Memory Systems has shipped over 3 million copies of our popular Colorado Backup™ software. Now, we bring you new Colorado Backup for Windows™ 2.0, which supports all Colorado Tape Backup Drives from 120 MB to 4 GB through a common, easy-to-use interface.

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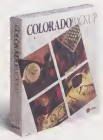
❖ Explore Colorado Backup for Windows and the complete line of Colorado Tape Backup Solutions today.



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Circle 184 on reader service card.

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extension 751

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Easy to use. With TI's new easy set-up, just take a few simple steps and your printer driver is automatically loaded on your hard drive. And the Color Magic™ driver on our microMarc Color inkjet printer has easy to understand menus so even a beginner can print professional quality documents.

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Easy to own. Our printers have the friendliest prices around. We even offer a 30-day risk-free trial* to make sure you're perfectly satisfied.

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All prices are estimated street prices. Dealer prices may vary. *Offer applies to all new microMarc, microWriter, microLaser, and 9835 Forms printers, if returned in good condition. microMarc, microWriter, microLaser, Color Magic, and "Extending Your Reach" are trademarks of Texas Instruments Incorporated. 1962 is a registered trademark of IBM. Corp. Mac is a registered trademark of Apple Computer, Inc. Adobe, PostScript, Adobe Memory Booster, and the PostScript logo are registered trademarks of Adobe Systems, Inc. Windows is a registered trademark of Microsoft Corporation. PCL is a trademark of Hewlett-Packard, Inc. © 1994 TI

microMarc™ Color Printer
Under $400.
This flexible color/black and white inkjet printer adds vivid color to your work. Windows™/DOS compatible.

microWriter™ Printer
Now Under $500.
An entry-level, laser-quality printer for small businesses and home users. 300 dpi, 5 pages per minute. Windows/DOS compatible. Add 23 Scalable fonts and Mac™ compatibility on our PS23 model. Now under $700.

microLaser™ 600
Under $900.
Laser-quality printer for the business professional looking for "personal" 600 dpi PostScript printing. 5 pages per minute. Adobe Memory Booster. Mac/Windows/DOS compatible.

microLaser Pro 600 Printer
Now Under $1,300.
A feature packed, high performance 600 dpi printer. 8 pages per minute, 6 MB memory, two 250-sheet paper trays. Mac/Windows/DOS compatible. Optional multi-network interface now available.

12ppm microLaser Pro E
Under $1,450.
Ideal for volume intensive small work groups. 12 pages per minute, 600 dpi, Adobe Memory Booster™. Mac/Windows/DOS compatible. Optional multi-network interface now available.

12ppm microLaser PowerPro Printer
Under $1,750.
Ideal for heavy graphics printing. 12 pages per minute, a turbo-charged processor, 600 dpi, 67 scalable fonts. Mac/Windows/DOS compatible. Optional multi-network interface now available.

8920 Forms Printer
Under $2,600.
A heavy duty dot matrix printer for up to 4-part business forms. Adjustable 18-pin printhead, fine print speeds, zero tear-off for form waste elimination. Windows/DOS compatible.

Adobe PostScript

EXTENDING YOUR REACH™

TEXAS INSTRUMENTS

Circle 162 on reader service card.

MVP Applications: Suites

Application suites are the Price Clubs of software. Everything you want, they have—in the industrial-strength version. Unlike the low-end Works applications or the mercifully now-extinct "integrated" applications, suites don't have a bunch of hobbled or otherwise undesirable programs thrown onto their disks. The core elements of every suite—the word processor, spreadsheet, and presentation graphics program—are a vendor's best stand-alone applications. On top of that you get application integration, easier installation, and a bargain price you can't ignore. But perhaps the biggest benefit to suites is the time you'll save educating users—learn one app in a suite and you're well on the way to learning them all. For workgroups, in addition to reduced training and support costs, the leading suites also offer network features such as best-of-breed e-mail front ends that you can also control from the core applications themselves.

Unfortunately, last year's winning productivity applications—WordPerfect, Quattro Pro, and Paradox—didn't arrive in their new suite bundle in time for the MVPs this year. Check this space next year to see how it fares.

MVP	DECISION MAKER
The best overall applications, integration, and usability	Microsoft Office Professional 4.3
Workgroup integration with Notes, plus a PIM as a bonus	Lotus SmartSuite for Windows
Its strong apps are the best and only answer for OS/2 users	Lotus SmartSuite Release 1.1 for OS/2

Office Professional 4.3

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The sweetest of suites is Microsoft's Office Professional 4.3 for Windows. Its applications—Word 6.0, Excel 5.0, PowerPoint 4.0, Access, and Mail—are all MVP finalists. Two are MVP winners. The applications are all outstanding, and are integrated under the Microsoft Office Manager, which offers a common installation routine, a customizable toolbar, and cross-application help. In addition, Word, Excel, and PowerPoint all support OLE 2.0 for sharing data among applications. You can, for example, drag and drop a spreadsheet into your word processing document, and edit the shared data from either application. Microsoft Office Professional's applications share nearly identical top-level menu bars and toolbars, and several dialog boxes are exactly alike among applications.

Microsoft Corp. / (800) 426-9400 / $899 / *Reader Service No. 710*

SmartSuite for Windows

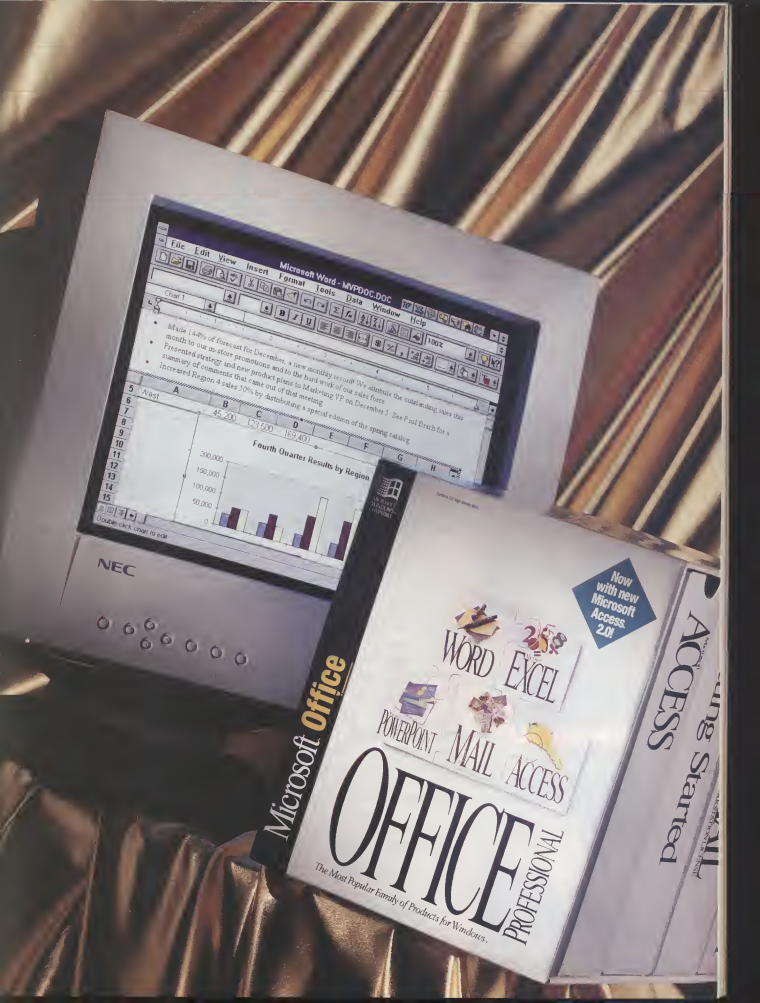
The applications that make up Lotus SmartSuite 3.0 for Windows are a treasure to find all in one box: 1-2-3, Ami Pro, Freelance Graphics, and Approach. SmartSuite is also the only suite with its own PIM: Organizer. And for tightly integrated workgroups that use Lotus Notes, SmartSuite is the best choice, as each application is Notes-enabled.

Lotus Development / (800) 343-5414 / $795 / *Reader Service No. 711*

SmartSuite for OS/2

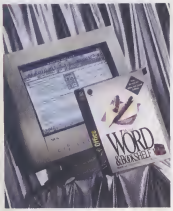
Just because you don't do Windows doesn't mean you're out of the suite game. Lotus SmartSuite Release 1.1 for OS/2 is a collection of native OS/2 applications, including Ami Pro, 1-2-3, and Freelance Graphics. SmartSuite gives you multithreading and multitasking that's years ahead of Windows. If you use OS/2, now you have a suite that can keep up.

Lotus Development / (800) 343-5414 / $795 / *Reader Service No. 712*


Microsoft Word - MYDOC.DOC
File Edit View Insert Format Tools Data Window Help
Fourth Quarter Results by Region
NEC
Microsoft Office
WORD
EXCEL
POWERPOINT
MAIL
ACCESS
OFFICE PROFESSIONAL
The Most Popular Family of Products for Windows.
New with new Microsoft Access 2.0!
ACCESS
Getting Started

MVP Applications: Word Processing

Usability, automation, integration, and power. These were the word processing buzzwords of 1994. Sure you want a word processor jam-packed with snazzy features, but what good are they if you have to be a rocket scientist to figure them out, if your word processor doesn't work with your other applications, or if it has the speed of a limping snail? Well, now you can demand it all and get it. In addition to just about every text-handling feature imaginable, today's word processors handle faxing and e-mail, graphics, and multimedia—there's nothing they can't do. They not only work for you, but with your other applications to make everyday tasks easier. You can pick up a great word processor in an application suite, and you may prefer to buy software that way. But for the best features the software vendors have to offer, look to these winning stand-alone applications.



Word and Bookshelf

Microsoft Word 6.0 is a dynamite program. Full of features and ease-of-use engineering, it can handle any type of document, and it's phenomenally easy to use considering its power. Our favorite version of Word 6.0 comes on a CD-ROM alongside Microsoft Bookshelf, the ultimate writer's toolbox. It's a great package, and a bargain too.

Microsoft / (800) 426-9400 / $399, upgrade $149 / *Reader Service No. 714*

WordPerfect for DOS

Who says DOS is dead? It's quite alive, thanks to WordPerfect 6.0b for DOS, the last great DOS application and a powerhouse by any measure. It has its own integrated spreadsheet, superior file management, a graphical interface, and great online help and tutorials. And for all that power, you don't need an 8MB 486 to run it.

WordPerfect/Novell / (800) 451-5151 / $495 / *Reader Service No. 715*

WordPerfect for Windows

84

This is the latest version of the same great application that won the word processing MVP Award last year. A few notable improvements helped WordPerfect retain its crown. Version 6.0a is faster than 6.0 at printing, scrolling, opening files, and handling graphics. New QuickCorrect and QuickSelect features, similar to Word's AutoCorrect and AutoSelect, make the product more usable. The QuickStart Coach holds the hand of the first-time user, and there's extensive online help for the rest of us. WordPerfect has a superior mail-merge function: An online Coach walks you through the creation of a mailing list, and one click on the Feature Bar inserts merge fields in a letter. The program also makes it easy to track documents. WordPerfect for Windows is a great stand-alone application, but it also works well with other Windows apps. The Novell/WordPerfect suite due out next year, which will include a version of this program, should have even better integration.

WordPerfect/Novell / (800) 451-5151 / $495 / *Reader Service No. 713*

MVP DECISION MAKER

The best, easiest all-around word processor	WordPerfect 6.0a for Windows
Great word processing and extensive references	Microsoft Word and Bookshelf
The best full-featured word processor for DOS	WordPerfect 6.0b for DOS

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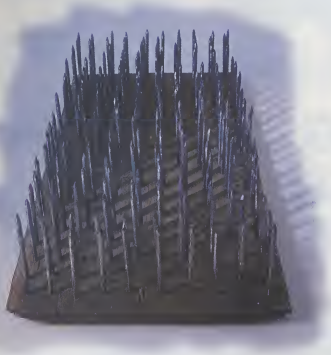
MICE **KEYBOARDS** **FLOPPY DISK DRIVES** **CD-ROM DRIVES**



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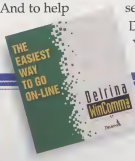

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Best of all, you can get WinComm PRO in the Delrina Communications Suite,™ which also includes Delrina WinFax PRO 4.0, the best-selling, full-featured fax application in the world. Two best-of-breed products for one low price.

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December 1994

May 30, 1994

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Circle 284 on reader service card.

QuarkXPress 3.3

When you need professional-strength page layout, you need a program that gives you tight control over typography and color, cross-platform compatibility, and enough flexibility to mold the program to work the way you do. QuarkXPress 3.3, designed for magazine and advertising work, is your choice. Few programs can match its on-the-fly page layout and graphic design features, precision typography, and superb color control. Better yet are the myriad QuarkXTensions—add-ons that let you select your own tools for custom solutions. QuarkXPress isn't the easiest program to learn, but once learned, it's easy to use. It has superior graphical control and can handle formatted text with WYSIWYG ease. Its full array of color models and matching systems is equaled only by those in PageMaker. Despite the great strengths of its close competitors, QuarkXPress is still the best choice for well-integrated and customizable page layout for precision design-driven publishing.

Quark / (800) 788-7835 / $799 / *Reader Service No. 716*

MVP DECISION MAKER

Superior text control, typography, and color output	QuarkXPress 3.3
The best way to manage fonts, even on a network	ElseWare FontWorks 1.1
Quick and not-so-dirty documents in a jiffy	Microsoft Publisher 2.0

MVP Applications: Desktop Publishing

Say "desktop publishing" to most people, and they think of throwing font-laden text into columns and spraying a dose of graphics into the mix—basically, the type of job most word processors can do. But desktop publishing has gone beyond that. In 1994, Adobe and Corel did yeoman's work revamping PageMaker 5.0 and Ventura. But even these updates paled in comparison to the world-class values offered by this year's MVP finalists—to say desktop publishing is a tough battleground would be an understatement. The winning products this year offer serious value to any business where the quality of output is important—that is, any business at all. For top-flight publications, QuarkXPress has the best combination of features and usability. For quick-and-dirty output, Microsoft Publisher is a knockout. And anyone who uses fonts can take advantage of FontWorks.

FontWorks 1.1

Its 150 special font files take up hardly any disk space, don't slow down your system, and offer excellent font substitution. Better yet, FontWorks provides ways to manage fonts on a network. And if you're typographically challenged, the program's font advisor gives you excellent choices for whatever class of document you're creating.

ElseWare / (800) 357-3927 / $99 / *Reader Service No. 717*

Publisher 2.0

So you say you don't know your x-height from a hole in the ground? Fire up Microsoft Publisher 2.0, go through its lineup of publication-building PageWizards, pick the one you like, and follow the instructions. This isn't something you'd use for creating technical documentation, but for quick and easy one-off documents, it's tough to top.

Microsoft / (800) 426-9400 / $99 / *Reader Service No. 718*

We'll always need paper documents—maybe. With the right tools, the images that now appear on paper can be made easier to find, store, share, and use in your daily work. There are dozens of routes to distributing and managing documents in the paperless office. The products we like best in this category are those that offer the biggest return for their learning curve. Caere's PageKeeper makes it easy to store and track documents online; Adobe's Acrobat is just the thing for distributing them over multiple platforms with their designs intact; and for online reference tools, Folio's Folio Views can't be beat. These products offer immediate paybacks. Save just a few trips to the file cabinet and all of a sudden you've got a lot more time on your hands to do real work. Multiply the savings by an entire workgroup, and pretty soon you're talking real money.

Acrobat 1.0

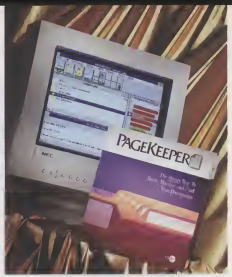
Do you have users on Macs and PCs and need to move fully formatted files between them? Acrobat is the solution. Better yet, it compresses text and graphics so you don't have to worry about all that information clogging your e-mail bandwidth. And for document management, you can search files for just the text you need.

Adobe / (800) 872-3623 / $195 list / *Reader Service No. 720*

Views 3.1 for Windows

This is a document creation and retrieval system you can tailor to meet your own needs—without having to call in developers or become one yourself. You can distribute a manual, or create a document anyone in your company can add to. Folio Views 3.1 for Windows handles the indexing and merging for you.

Folio Corp. / (800) 543-6546 / $895 list, production kit / *Reader Service No. 721*



PageKeeper

94

You have a stack of information online and geological strata of paperwork in your in-box. You don't have the time to deal with the info-glut, nor the budget to hire your own personal librarian. Relax: With PageKeeper, a scanner, and a moderately large hard disk, you have all you need to store and retrieve documents in the blink of an eye. You don't have to index your files or use keywords—Caere's OmniPage optical character recognition engine takes care of that. You don't have to remember Boolean constructs—a plain-English search language finds what you need. And you don't have to wade through mounds of irrelevant search results—the weighted relevance capability of the search engine gives you files ranked in order of importance (the program deconstructs your documents word by word to figure this out). If you've got text somewhere that you have to find or your contract goes down the tubes, PageKeeper is the low-maintenance solution for storage and retrieval.

Caere / (800) 535-7226 / $99 direct, single user; $595 direct, workgroup / *Reader Service No. 719*

MVP DECISION MAKER

The best interface to the paperless office	Caere PageKeeper
A great tool for distributing electronic documents	Adobe Acrobat 1.0
A development environment for information databases	Folio Views 3.1 for Windows

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The leader in network computing has just taken the risk out of networking your business.

Personal NetWare® packs big features into an affordable, easy-to-use peer-to-peer network, with plenty of power for small businesses and workgroups. For starters, it works perfectly with what you already have. Whether you're using DOS or MS Windows, you can share files, printers, CD-ROMs and other resources with everyone on the network. Plus, an icon-driven, point and

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2. How many 286?_____ 386?_____ 486?_____ Pentium_____
3. What percent use MS Windows?_____%

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Fax (_____)_____

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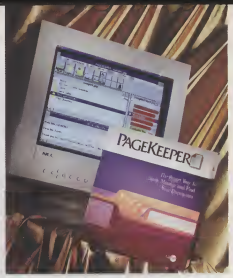

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Acrobat 1.0

Do you have users on Macs and PCs and need to move fully formatted files between them? Acrobat is

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MVP Applications: Spreadsheets

There's speculation that the investment boom of the 1980s was fueled not by the Reagan administration but by spreadsheets. For the first time in history, small-time investors could use their spreadsheets to crunch numbers as easily as word processors massage text, and that's what accounted for their entering the markets at record rates. If this theory is true, there's another boom market on the horizon, because today's spreadsheets are more powerful than ever. Better charting capabilities and links to maps improve the display of data, making the spreadsheet an unparalleled analysis tool, while simplified database access makes finding relevant data less of a trial. And spreadsheets now integrate with other applications and other users. By tapping into e-mail and offering OLE support, this year's MVP finalists promise to extend the impact of spreadsheets throughout your company.

Excel 5.0

94

Microsoft's Excel 5.0 is the most usable spreadsheet we've ever seen. Its ChartWizard, for example, analyzes data to choose the most effective graph type. Excel even detects when you're having difficulty with a task and turns on a lightbulb icon to tell you that it can help. Excel also establishes the way an application should work in an era of integrated applications. Acting as a client, Excel can use the resources of other OLE 2.0 applications. Or, as an OLE 2.0 server, it can provide its capabilities to other Windows programs. Visual Basic for Applications—Excel's macro language extension of Visual Basic—ties everything together. Excel has superior organizational capabilities thanks to its outline features and workbook organization. The program also has the raw horsepower to win in this category. It's chock-full of analytic, mathematical, time-and-date, and text-handling tools, and it offers strong database support. There's not much that Excel can't do.

Microsoft / (800) 426-9400 / $320 / *Reader Service No. 722*

1-2-3 Release 5

Don't know much about geography? Lotus 1-2-3 Release 5 for Windows can build you a color-coded map of what's selling where. It also has outstanding e-mail and groupware integration, and the best version management for casting multiple scenarios or tracking who's done what to your files as they've been routed around the workgroup.

Lotus / (800) 343-5414 / $300 / *Reader Service No. 723*

Quattro Pro 6.0

Newly acquired from Borland, WordPerfect's version of Quattro Pro has better features and usability than ever. It has in-cell editing and text alignment, and its Coaches and Experts make this powerful spreadsheet easy to use. But where Quattro Pro really shines is in database access, thanks to its integrated Paradox and dBASE engines.

WordPerfect / (800) 451-5151 / $50 / *Reader Service No. 724*

MVP DECISION MAKER

Unparalleled usability with best-of-breed features	Microsoft Excel 5.0
Good version management and workgroup integration	Lotus 1-2-3 Release 5 for Windows
The best database features and integration	WordPerfect Quattro Pro 6.0

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MVP Applications: Finance

Accounting is the granddaddy of all computer applications, and this year the distant progeny of those ancient mainframe programs are rising to prominence again. Want to run a business on a PC? Accounting software has always been available for this, but never with the features and ease of use of today's programs. The finalists among financial applications provide not just general ledger and inventory management, but integrated contact management, to-do lists, and reminders. And if you want to see the big picture, look to another current application to drill through your amassed financial data and give you an overview of how your company is performing. But the best financial program this year isn't for the megacorporation—it's for you and me. Thanks to an ever-expanding feature set combined with improved ease of use and a growing list of online services, Intuit's enduring Quicken takes our top honors.

DacEasy EIS

You can get slide-show-quality views of business financial data with DacEasy's Executive Information System (EIS). The graphics are dynamically linked to their underlying data, so they change with your financial picture. EIS works with most databases and spreadsheets, in addition to DacEasy's own accounting software.

DacEasy / (800) 322-3279 / $299 direct only / *Reader Service No. 726*

Peachtree Accounting 3.0

This is the first Windows-based accounting package we've seen that also includes nonaccounting productivity enhancements to run every aspect of your business. On top of a powerful accounting package with the capacity to handle a $10 million business, it also includes a useful to-do list and an integrated contact manager.

Peachtree Software / (800) 247-3224 / $119 / *Reader Service No. 727*

Quicken CD-ROM

94

Along with great features for managing your personal finances, Quicken for Windows CD-ROM Deluxe Edition manages your home inventory, online investment information, tax estimation, and more. There really is no better way to keep your finances organized and up-to-date. The CD-ROM includes the *Wall Street Journal*'s video investment guide, a personal finance library, and several helpful government publications. Investors will appreciate the included program that lets you access prices for more than 10,000 stocks and mutual funds at the click of a button. As for usability, the intuitive interface is supported with easy-to-understand online documentation and companion guides that are hot-linked to provide instant onscreen, context-sensitive help. And getting started is a snap with Quicken Qcards. The bottom line is simple: If you need to organize and manage your personal and small-business finances quickly and easily, there's no better choice than Quicken for Windows CD-ROM Deluxe Edition.

Intuit / (800) 433-8810 / $73 / *Reader Service No. 725*

MVP DECISION MAKER

The best, most usable program for personal finance	Quicken for Windows CD-ROM Deluxe Edition
Easy access to your company's financial overview	DacEasy Executive Information System
Business accounting with handy extra tools	Peachtree Accounting 3.0 for Windows

THE 5 POINT PENTIUM CHECKLIST

June 28, 1994
Micron P90PCI POWERSTATION

"The system's components and general design dazzled under Windows."

June 27, 1994
Micron P90PCI POWERSTATION

"This machine offers the best available combination of price and performance."

September, 1994
Micron P90PCI POWERSTATION

"Outfitted to the nines for the most demanding business applications."

October, 1994
Micron P90PCI POWERSTATION

"Micron serves up a feast for the power hungry with its new Pentium-90."

July, 1994

The highest ratings available in four categories for 1994.

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POWERSTATION

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- 2X CD-ROM drive, 3.5" floppy
- PCI 64-bit graphics accelerator (2MB)
- "Tool-free" desktop or mini-tower
- Microsoft® Mouse, 101-key keyboard
- MS-DOS® & Windows® for Workgroups

A
- 8MB RAM, 527MB IDE hard drive
- 15" Micron 15FGx, 1280N, .28mm
- Hauppauge Wave Multimedia SD

$2,299

B
- [illegible]
- 15" [illegible]

$2,899

C
- [illegible]

$3,899

POWERSTATION *PLUS*

- Intel 90MHz Pentium processor
- 256K write-back cache, Flash BIOS
- PCI 32-bit Fast SCSI-2 controller
- 4X SCSI-2 CD-ROM drive, 3.5" floppy
- PCI 64-bit graphics accelerator (2MB)
- "Tool-free" desktop or mini-tower
- Microsoft Mouse, 101-key keyboard
- MS-DOS & Windows for Workgroups
- Microsoft Office Professional 4.3 CD

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- 16MB RAM , 1GB SCSI-2 hard drive
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$3,499 (Lease $113/month)

B
- 32MB RAM, 2GB SCSI-2 hard drive
- 15" Micron 15FGx, 1280N, .28mm

$4,799 (Lease $155/month)

C
- 64MB RAM, 4GB SCSI-2 hard drive
- 17" Micron 17FGx, 1280N, .26mm

$6,999 (Lease $221/month)

D
- 128MB RAM, 9GB SCSI-2 hard drive*
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* Not available in desktop

P90PCI Micron's P90PCI PowerStation provides the highest performance for your most demanding applications. And the P90PCI is available in a wide range of system configurations so you can match your requirements for CAD, business and graphics applications. See for yourself why *PC World* called Micron's P90PCI PowerStation "a screamer." And why *PC Magazine* said, "If value is paramount, the Micron P90PCI offers all you'll need in higher order computing."

PC WORLD — May 1994 POWERSTATION
PC MAGAZINE — January 26, 1993 MAGNUM
PC WORLD — June 1994 MAGNUM
PC MAGAZINE — April 26, 1994 MAGNUM
PC WORLD — October 1994 POWERSTATION
PC MAGAZINE — June 28, 1994 POWERSTATION
PC WORLD — October 1994 MAGNUM

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intel inside pentium

CAD

Autodesk

Micron's P90PCI is engineered to provide the highest performance for your most demanding CAD applications. Applications such as AutoCAD, AutoVision, and 3D Studio. From the pioneer and market leader in supplying CAD software for the desktop-Autodesk-providing an arsenal of design and engineering power when matched with Micron's super-charged workhorse, the P90PCI. With the P90PCI, experience CAD capabilities and functionality that were once available only in high-end environments. That's because Micron delivers tightly integrated system solutions and a wide range of system configurations that ideally match your needs and are aimed at greatly increasing your productivity. CAD with power to spare. See for yourself why *PC World* said, "Micron serves up a feast for the power hungry with its new Pentium-90."

The calculated match . . . Autodesk and Micron's P90 Pentium performers.

BUSINESS

Microsoft Office

Look to Micron's versatile P90PCI and Microsoft Office Professional for a completely integrated and extremely powerful office solution. Thanks to Micron's P90PCI Pentium performance and Microsoft's intuitive OfficeLinks tools, it's easy and fast to share text, data and graphics seamlessly between the suite of best-selling products that make up Microsoft Office–Microsoft Word, Microsoft Excel, Microsoft Access, Microsoft Powerpoint and Microsoft Mail. See how the powerful P90PCI makes easy work of creating spreadsheets, charts, graphs, and presentations. And at a super-low price point that is turning the critics' heads. That's why *PC Week* said "the P90PCI PowerStation offers the best available combination of price and performance."

The integrated match . . . Microsoft Office and Micron's P90 Pentium performers.

GRAPHICS

Fractal Design **Painter 3**

Matched with the awesome performance of Micron's P90PCI, Fractal Design Painter 3, with 50 new and exciting features, allows you to stretch your imagination and take full advantage of Painter 3's patented *Natural-Media®* creative technology. The processing power of the Micron P90PCI makes easy work of your most demanding imaging projects. And with a wide range of system configurations to choose from, our reputation as a high quality provider of reliable systems, and the lowest prices anywhere, Micron makes selecting your P90PCI an enjoyable experience. We back that up with a 30-day money back guarantee and a full one-year warranty on the entire system, including the monitor! According to *PC World*, our customers are more likely to purchase a Micron computer again than any other manufacturer. Need we say more?

The natural match . . . Fractal Design Painter 3 and Micron's P90 Pentium performers.

It's Your Call!

800-515-9197

MICRON

THE P90 HOME MPC

Pentium Power

The days are gone when a 486 PC was sufficient for home use. Now, by the time mom and dad get their spreadsheet and graphics packages loaded, and the kids cram on their educational software and arcade-quality multimedia games, your PC is crying out for more horsepower. Micron provides you an attractive alternative—the Micron P90 Home MPC, with 90MHz of Pentium performance at 486 prices. And on top of that, we include the SoundBlaster 16 sound card, speakers, joystick, CD-ROM drive and fax/modem—plus a wide variety of home productivity and entertainment software on CD. Don't settle for less than a Micron P90 Home MPC.

- Intel Pentium 90MHz processor
- 8M8 RAM, 256K write-back cache
- 527M8 12ms IDE hard drive (PCI)
- 2X CD-ROM drive, 3.5" floppy drive
- Sound8laster 16 sound card, speakers & joystick
- 14.4/9600 Fax/Modem & WinFax Lite
- PCI 64-bit graphics accelerator (2M8)
- 14" Micron 14FG, 1024Ni, .28mm
- "Tool-Free" desktop or mini-tower
- Microsoft Mouse, 101-key keyboard
- MS-DOS & Windows for Workgroups
- Microsoft Works Multimedia CD, Microsoft Encarta CD, Quicken Deluxe Edition CD
- Trial subscriptions for Compuserve, America OnLine & Prodigy
- LucasArts CD games: Rebel Assault, Day of the Tentacle, Indiana Jones and the Fate of Atlantis

intel inside pentium

$2,499

Every Micron Home MPC comes free with *Microsoft Encarta* CD, Microsoft *Works Multimedia* CD and *Quicken Deluxe Edition* CD. You also get the latest CD games from LucasArts: *Rebel Assault, Day of the Tentacle, and Indiana Jones and the Fate of Atlantis.* Along with trial subscription for CompuServe, America OnLine and Prodigy. All included in the one low affordable system price.

EXCLUSIVELY FROM MICRON

- Next Day Shipping on Selected Systems
- 30-Day Risk-Free Money Back Guarantee
- One-Year Express Parts Replacement
- Lifetime Toll-Free Technical Support
- On-Site Service or System Replacement

It's Your Call!

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International Phone 208-465-8970 | International FAX 208-465-8993 | From Mexico Call 95-800-708-1755 | From Puerto Rico Call 800-708-1756 | From Canada Call 800-708-1758

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MICRON COMPUTER, INC.

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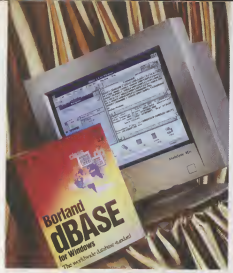


dBASE 5.0 for Windows

Ashton-Tate first announced dBASE for Windows in 1991, but the product finally shipped only this year, from Borland International. It was worth the wait: It's everything a relational database is supposed to be. There's plenty of power for the savvy xBASE developer, including object-oriented extensions to the familiar language and extra tools in the way of VBX access. Don't want to mess with the language? dBASE lets you create an object in the GUI design surface, then tweak the source code. Add to all that a robust database engine (the same one used by Paradox) and seamless interaction with external databases, and you get a complete client-server relational database development tool for the nineties.

Borland Int'l. / (800) 336-6464 / $329; upgrade, $179 / *Reader Service No. 728*

MVP DECISION MAKER

Power, ease of use, and xBASE language compatibility	Borland dBASE 5.0 for Windows
Powerful but code-free database for end users	Lotus Approach Release 3.0 for Windows
Easy programming and suite integration	Microsoft Access 2.0
Heavy-duty programming language and connectivity	Borland Paradox 5.0 for Windows

MVP Applications: Databases

Databases are among the most feared business applications, partly because most database development tools have been built for programmers, not end users. Fortunately, that's changing. The most powerful, programmable, industrial-strength databases today have templates and usability-tested interfaces to get the neophyte up to speed, even on complex relational databases and reports. This is not to say that they've given up any of the power or connectivity options. All the programmable database finalists here offer amazingly robust tools and languages. And all the products this year can link into external data sources—important since the vast majority of today's mission-critical data still resides on corporate mainframes. This year we're glad to see Paradox and Approach back as finalists, and we welcome Microsoft Access. But the winning database is both new and old.

Approach Release 3.0 for Windows

Here is a complete relational database without a programming language. But with its high-end features and connectivity to SQL and other database formats, any user can develop serious database applications. If you need to get a database up and running quickly, it's the best choice.

Lotus / (817) 577-8500 / $99 / *Reader Service No. 729*

Access 2.0

In Microsoft's Access 2.0, end users get a beautiful interface and dozens of Wizards, while developers get Access Basic, an event-driven development environment. Access is fast, and it hooks in to dozens of external data sources.

Microsoft / (206) 882-8080 / $429; upgrade, $119 / *Reader Service No. 730*

Paradox 5.0 for Windows

This workhorse has a comprehensive set of development and end-user tools, with great online tutorials. That's on top of its traditional high-end programming language, speed, and workgroup functionality.

Borland Int'l. / (800) 336-6464 / $329; upgrade, $179 / *Reader Service No. 731*

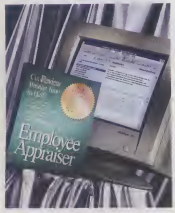
MVP Applications: Management

In the trimmed-down business environment of the 1990s, you need all the help you can get to compete and succeed. You're expected to accomplish greater feats with fewer resources, all in the face of mounting international competition. With this in mind, software companies have launched a series of applications strictly for business problems; hence this new MVP category. Simply put, you can't afford to do business without them. Our finalists include a healthy cross section of core business software: Elan Software's GoldMine 2.5 for Windows, an automated contact-management, activity-scheduling, and sales-forecasting groupware application; Microsoft Project 4.0, the easiest-to-use project manager on the market today; and Austin-Hayne's Employee Appraiser 2.0, the best personnel evaluation package we've tested.

Project 4.0

Forming project goals is easy. But determining what steps will be required to meet your goals, who will carry them out, and how much it will cost are daunting tasks. Project 4.0 lets you tackle it all with ease, and its integration with Microsoft's Schedule+ and Mail makes workgroup scheduling and communication a snap.

Microsoft / (800) 227-4679 / $469 / *Reader Service No. 733*



Employee Appraiser 2.0

Of the several employee evaluators we've reviewed, the best is Austin-Hayne's Employee Appraiser 2.0. Its Coaching Advisor walks managers through review writing, providing context-sensitive insights to help identify and solve performance and behavioral problems. It will also steer you away from using legally indefensible language.

Austin-Hayne / (800) 809-9920 / $99 / *Reader Service No. 734*

GoldMine for Windows

94

If the heart and soul of your business are the contacts you make, then how you manage those contacts could determine whether you win or lose. But contact management is just one cog in the wheel of a smooth-running business machine. Additionally, you need to plan your schedule and that of your group, forecast sales, manage correspondence and phone calls, and occasionally organize telemarketing campaigns. There's only one Windows application that meets and exceeds all of these needs—Elan Software's GoldMine 2.5 for Windows. Besides supporting the features listed above, the real beauty of GoldMine is its workgroup strength. Also notable is its capability to search and analyze resources and employee availability, as well as to delegate tasks and share progress reports among members of the workgroup. GoldMine is a superior contact manager with a full, easy-to-use feature set that will work to your business advantage.

Elan Software / (800) 654-3526 / $230 single user; $750 five users / *Reader Service No. 732*

MVP DECISION MAKER

Contact management along with forecasting	Elan Software GoldMine 2.5 for Windows
Easy project planning, management, and analysis	Microsoft Project 4.0
The best way to write effective employee reviews	Austin-Hayne Employee Appraiser 2.0

INTRODUCING

THE FIRST EXPANDABLE UPGRADEABLE FLEXIBLE AFFORDABLE STEREO MODULAR MULTIMEDIA MACHINE

Two crisp, colorful 9.4" displays to choose from. For an excellent value, get the 256-color Dual Scan (standard with Model 550S). Or for a screen that rivals any desktop monitor, get the TFT Active Matrix (standard with 550T and 5100T).

New TwinTouch™ pointing device, a Slimnote exclusive, is the next step beyond trackballs. Moving the cursor is as easy and intuitive as moving your finger. TwinTouch comes standard on Model 5100 and as an optional upgrade on the 550S and 550T.

Don't settle for tinny 8-bit sound. Slimnote gives you vibrant 16-bit stereo, with two speakers and a microphone built right in. It's the multimedia machine that fits in your briefcase!

The PCMCIA slot, which accepts two Type IIs or one Type III, gives you virtually unlimited expansion.

Get maximum performance from Windows™ with 1 Mb of video on the local bus. Your Slimnote will work beautifully with any VGA monitor, at resolutions up to 1024 x 768.

Want to double your battery life? Simply slide out the floppy-drive module (included with your Slimnote) and replace it with a second battery pack.

You can easily remove the hard-drive module for instant expandability, easy servicing and total data security. Hard drives as large as 500 Mb are available.

Words can hardly begin to describe the Slimnote® 5 Series notebooks from Twinhead. That's because no other notebook offers you so much.

Thanks to its unique modular design, you can quickly customize your Slimnote to fit your needs perfectly. Even if what you need tomorrow is different from what you need today.

Want to add more RAM, a faster CPU, a bigger hard drive, or update your screen? A modem, network card, infra-red or extra battery? You can do it yourself in seconds. Just snap in the module you need and you're ready to go.

For even greater flexibility, the optional Docking Station gives you two ISA slots and one drive bay. And the optional I/O Slice adds SCSI II and MIDI/game ports. It also duplicates all ports on the Slimnote, so you can dock with just a single connection.

MULTIMEDIA TO GO

If you make presentations on the road, Slimnote is the ideal notebook for you. You get built-in stereo sound, two speakers, a microphone, 1 Mb of video acceleration, plus your choice of two brilliant color displays. Until now, you needed a desktop machine to get multimedia performance as good as this!

ORDER DIRECT FROM THE TRUE SOURCE™

For more than a decade, Twinhead has been building computers for some of the biggest names in the business. Now we're offering our superior quality and reliability direct to you. And when you buy from us, you're protected by our 30 day money-back guarantee, worldwide ExpressCare™ service, and a lifetime of toll-free technical support from the True Source — the people who actually built your computer.

ORDER DIRECT AND SAVE!

1-800-995-8946

Monday thru Friday, 8am to 5pm, PDT

Slimnote 550S. Only $2,479
IntelDX2/50; 9.4" Dual Scan color display; 4 Mb RAM; 260 Mb hard drive; integrated 25mm trackball.

Slimnote 550T. Only $3,779
IntelDX2/50, 9.4" TFT Active Matrix color display; 8 Mb RAM; 340 Mb hard drive; integrated 25mm trackball.

Slimnote 5100T. Only $4,199
IntelDX4/100, 9.4" TFT Active Matrix color display; 8 Mb RAM; 340 Mb hard drive; integrated TwinTouch™ pointing device.

Monochrome model available – call for details.

Twinhead® *Two steps ahead™*

FREE CARRYING CASE
Order now and we'll include, at no extra charge, a custom padded carrying case.

YES! Send me the Slimnote 5 Series notebook model I have checked below.

☐ 550S ☐ 550T ☐ 5100T

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Please add $29 shipping and handling. CA and NJ residents please add appropriate sales tax.

METHOD OF PAYMENT:

☐ Check enclosed. (Payable to Twinhead Corp.)

☐ Charge to my: VISA MasterCard

CARD NUMBER EXP. DATE

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1537 Centre Pointe Drive Milpitas, CA 95035
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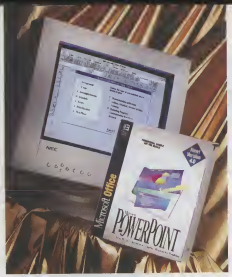
Circle 159 on reader service card.

In 1994, *everyone* began using presentation graphics: Programmers gave presentations to get new development projects funded. Human resources consultants prepared detailed presentations on health plans. The notebook-centric presentation became ubiquitous. How did this happen? The addition of presentation graphics software to application suites helped a lot. And the presentation graphics finalists this year are so easy to use that you can pick any one off the shelf at your local superstore and be productive with it in minutes. Beyond usability, these products will even build an outline for you or check your color choices for aesthetic *faux pas*. New this year, and much appreciated, is Harvard Spotlight, the ultimate presenter's helper. It takes a slide show from any presentation graphics product and makes sure you hold up your end in the timing department.



PowerPoint 4.0

94

You don't have time to learn another application, but you need a presentation *pronto*. Enter PowerPoint 4.0 for Windows' AutoContent Wizard. Tell it the nature of your presentation, and it pops up an outline. It even prompts you for the kind of text you should include and chooses an effective color scheme. PowerPoint includes full links to the Microsoft Office suite so you can import charts or graphics from Excel and outlines straight from Word. PowerPoint also includes a feature to help you time your presentation. While not as slick as Harvard Spotlight, it helps with the most important part of a presentation—delivering it. We appreciate PowerPoint's usability. With CueCards that explain complicated tasks, Wizards for creating as well as critiquing a presentation, and Tool Tips that pop up for every button, PowerPoint leads the pack in taking the difficulty out of presentations. If you've got stage fright, pick up this program and worry no more.

Microsoft / (800) 426-9400 / $340 / *Reader Service No. 735*

Harvard Spotlight 1.0

Fumble for facts no more. Harvard Spotlight 1.0 for Windows gives you a secret view into your presentation—speaker's notes, a timer, previews of upcoming slides—everything you need to appear poised and prepared. You'll never grope for content again. Best of all, it imports presentations from the other finalists in this category.

Software Publishing / (800) 336-8360 / $69 / *Reader Service No. 736*

Freelance Graphics 2.1

While it has always been the ease-of-use champ, this year Freelance Graphics 2.1 is a finalist for two reasons: customizability (you can create your own SmartMaster sets to make sure your entire company sports the same look) and workgroup features (it integrates with Lotus Notes). Our sneak peek at Version 3.0 promises even more.

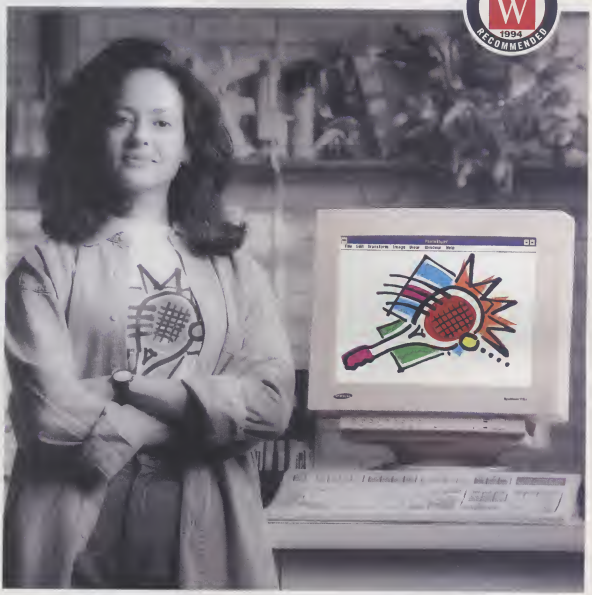
Lotus Development / (800) 343-5414 / $347 / *Reader Service No. 737*

MVP DECISION MAKER

Quickest way to create a compelling presentation	Microsoft PowerPoint 4.0 for Windows
Your secret coach and prompter while you're on stage	Harvard Spotlight 1.0 for Windows
Easy-to-use and customizable presentation package	Lotus Freelance Graphics 2.1

Samsung
A new point of view.

WINDOWS MAGAZINE 1994 RECOMMENDED



SyncMaster 17GLs

It's about how you work...Attitude. Satisfaction. Pride. The 17-inch SyncMaster™ monitors reflect today's changing lifestyles. Hassle-free. Value-oriented.

Samsung took for granted you wanted bright, crisp clear images that don't flicker. You're also concerned about safety and energy conservation, so they're standard on the whole series. Life should be as simple as possible, so we added innovative new features like On-Screen Display and Real Color Control, and as you would expect, the GL Series comes with a two-year limited warranty.

SyncMaster	14GL	15GL	17GL	17GLs
CRT Size	14"	15"	17"	17"
Dot Pitch	.28	.28	.28	.25
Maximum Resolution	1024 x 768	1024 x 768	1280 x 1024	1600 x 1280
Maximum Refresh Rate at Maximum Res. (Hz)	76	76	60	60
MPR-II (Low Radiation)	•	•	•	•
Power Management	•	•	•	•
Flat Square Screen		•	•	•
On Screen Programming			•	•
Real Color Control				•
Warranty	2 Years	2 Years	2 Years	2 Years

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Think about how you view your work. Samsung did. And came up with a whole new point of view.

For additional information, call 1-800-933-4110

TECHNOLOGY THAT WORKS FOR LIFE

SAMSUNG ELECTRONICS

Fax-on-demand System now available for product specifications 201-229-4053

Circle 138 on reader service card.

MVP Applications: PIMs

Picking the best personal information manager (PIM) was a trial, because everyone on our staff has their favorites. But in heated discussions we settled on a few things: We wanted more than a phone book or a simple to-do list, and we wanted to be able to share our knowledge—when appropriate—with our coworkers. As the debate raged, we came to realize that no product can keep all aspects of your work life together better than Arabesque's Ecco Professional 2.0. CrossTies is also a do-it-all PIM, but Version 1.0 does not provide network support. (That comes in Version 2.0, which didn't ship in time for our awards.) Not everyone needs all of the features of these high-end PIMs; if you don't need to be networked, we enthusiastically recommend Borland's Sidekick for Windows. Highly intuitive and easy to use, it provides a lot of bang for very few bucks.

Sidekick for Windows

This PIM is not feature-rich, far from it—Sidekick is a non-networkable, bare-bones information manager. But what it does, it does well—and quickly. Sidekick also offers useful features: drag and drop for moving information, and printing to DayTimer and other popular formats. It also has knockout searching and sorting features.

Borland Int'l. / (800) 331-0677 / $35 / *Reader Service No. 739*

CrossTies for Windows

In CrossTies, all data—names, tasks, programs, and activities—are objects. Sound confusing or difficult to use? It's not. A mouse click is all it takes to link objects: names to activities, to documents, to projects, or even to other names. If your modus operandi is keeping track of connections, this is the best PIM for you.

CrossTies Software / (800) 955-8437 / $150 / *Reader Service No. 740*

Ecco Professional 2.0

94

This year's new and improved Ecco Professional 2.0 is a PIM for the power user. Once you grasp the basics, you'll be hooked and join the ranks of Ecco groupies who refuse to use anything else. Version 2.0 offers workgroup features such as shared calendars, phone books, and outlines. And Ecco now handles enterprise-wide scheduling through e-mail standards such as MAPI and VIM. Group scheduling is a breeze because Ecco alerts you to conflicts in users' schedules and identifies alternative times when everyone is available. Ecco's DDE-based program interface lets you exchange information with your other applications. Integration with WinFax Pro is also new to Version 2.0. Finally, an impressive synchronization feature makes it possible to keep multiple copies of your database current without having to transfer megabytes of data every time you want to do an update. This is an awesome personal information manager—for the whole workgroup.

Arabesque / (800) 457-4243 / $200 / *Reader Service No. 738*

MVP DECISION MAKER

The super PIM for power users and for workgroups	Arabesque Ecco Professional 2.0
A basic, simple PIM built on a high-speed database	Borland Sidekick for Windows
The best way to manage connected information	CrossTies 1.0 for Windows

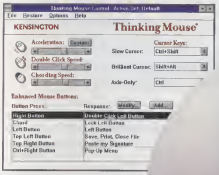
Thinking Mouse™

Because no two people think alike. Or work alike.

Or use a computer alike. But there is one thing two people can agree on. Thinking Mouse.

Introducing Thinking Mouse. The mouse designed for the way you work.

Unlike ordinary mice, Thinking Mouse is a *programmable* mouse. That means you can customize Thinking Mouse by assigning frequently used commands to different mouse buttons. And because each command executes with a single click, you work faster and save valuable time.



Thinking Mouse Control Panel

The way you program Thinking Mouse all depends on how you work. For example, you can open an application more easily by double-clicking with just one click. You can drag, scroll or highlight with less effort by locking a button down with just one click. You can even execute multi-step commands faster with a single click—like printing and saving a document, entering a block of text, logging onto a network, even sending a fax. The possibilities are endless.

Create your own pop-up menu.

Want to save even more time?

Thinking Mouse lets you organize frequently used commands in a personalized pop-up menu.

First, you create the menu with our easy-to-use software. After that, simply click on the assigned mouse button when you want the menu to appear. Click once more to execute any command.

You can indent text, change fonts, even insert your signature into a document.

Comfortable. Fits most hand sizes. Satisfaction guaranteed.

Pop-Up Menu

Thinking Mouse saves time, reduces hand movements and eliminates many repetitive tasks. Its tapered design, symmetrical shape and EasyGrip™ sides offer advanced comfort and control for a variety of hand sizes, and for both right-handed and left-handed users.

The unique Kensington Satisfaction Guarantee gives you a 5-year warranty, toll-free technical support and a no-risk 90-day trial. Available in Serial & PS/2, and Bus versions. Includes software for Windows, OS/2 and DOS. 100% Microsoft compatible. For more information, call 800-535-4242. Outside the US and Canada, 415-572-2700. For information by fax, dial extension 82 and request document 311.

5-Year Warranty
Satisfaction Guarantee
Toll-Free Technical Support
No Risk 90-Day Trial

KENSINGTON®

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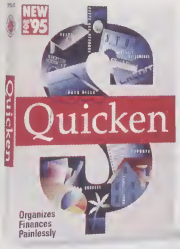
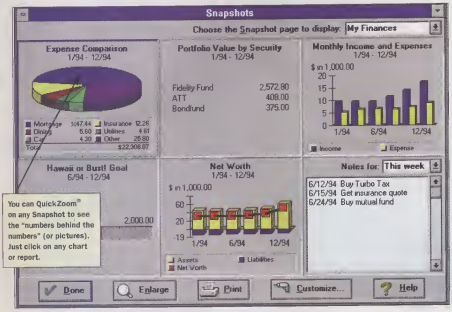
New 1995 Faster. Easier.



New Quicken 4 for Windows and New Quicken 8 for DOS are here.

And they're both loaded with more ways than ever to give you that confident, in-control feeling about your finances. Don't miss the best Quicken upgrade ever – with all these new features.



You can QuickZoom™ on any Snapshot to see the "numbers behind the numbers" (or pictures). Just click on any chart or report.

NEW! See your big picture instantly with Snapshots.

New Snapshots flashes your favorite reports and graphs on the screen all at once to give you an instant overview of your income, expenses, savings, budgets, investments and net worth for any time period. Use the preset Snapshots, or create your own in seconds – with just about any report or graph you'd want to see. (Windows and DOS Snapshots vary.)

NEW! Make smarter decisions for your future with Forecasting.

New 1995 Quicken automatically forecasts your balances and net worth based on your past spending (or budget). Then you can type in "what-if?s" to see the effect on your future cash flow and net worth.

NEW! Recategorize instantly with Global Find and Replace.

Too many "Miscellaneous" items? Wish you had categorized things differently? Now you can recategorize multiple transactions in one fast, easy step.

NEW! Instant Portfolio Updates.

Now you can automatically update your entire portfolio by modem with the latest stock, bond and mutual fund prices.

NEW! Save on taxes with Tax Planner.

Know where you stand all year long. New 1995 Quicken automatically estimates your taxes from your Quicken data. It also shows the tax impact of "what-if?s" like getting a raise, selling a stock or changing your withholding amounts.

NEW! Save painlessly with Savings Goal accounts.

Now you can set aside money for a special purpose without the hassle and expense of opening a new account at the bank. Your "tucked away" savings don't show in the register! (But you can track your progress with the new Savings Progress Bars in Windows or Snapshot in DOS.)

NEW! "Smarter" budgets with Supercategories.

Simply drag and drop categories you don't want to track separately – say "dining," "entertainment" and "fitness" into a new Supercategory. New 1995 Quicken still tracks the details, but you get a top-line budget so simple it's a snap to follow. (Windows only.)

Don't miss the best Quicken upgrade ever.

New Quicken 5 for Macintosh is also available now. © 1994 Intuit Inc. Quicken is a registered trademark and Quicken Companion, Quicken Financial Calendar, Quicken Home Inventory, QuickZoom and QuickFill are trademarks

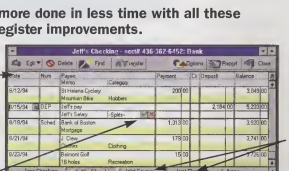
Quicken.® Even more insight.

NEW! Get more done in less time with all these Windows register improvements.

Customize the register any way you like. Change the positions of the category, check date, number, memo and more to suit yourself.

Splits have never been easier. Click "✓" to open. Click "X" to erase.

New Savings Progress Bar.



Switching between accounts is now a breeze. Just click on account buttons to change back and forth.

New Budget Progress Bar.

Even QuickFill is improved. Now you can prioritize the entries under any letter, so the one you want is the one you get – every time.

NEW! Whip through your "to-do's" with Reminders.

New 1995 Quicken gives you a fast shortcut for getting every item on your list done – scheduled transactions, checks to print and more – right from the new Reminder screen.

No-Risk 60-Day Money-Back Guarantee

Your satisfaction is guaranteed. If you don't agree this is the best Quicken upgrade ever, you can return it within 60 days for a full refund. Order today.

System Requirements: Quicken 8 for DOS requires 100% IBM compatible PC, 640 K RAM, DOS 3.0 or higher, 2.7 MB free on hard disk, graphics card to use graphs. **Quicken 4 for Windows** requires 100% IBM compatible PC, 386 or higher, Windows 3.1, 3 MB RAM minimum (4 MB RAM recommended), 8 MB free on hard disk, VGA or higher resolution monitor. Works with any printer supported by Windows 3.1. **Quicken DELUXE 4 for Windows** requirements same as Quicken 4 for Windows with total 12 MB free on hard disk. **Quicken DELUXE 4 for Windows CD-ROM** requires in addition to Deluxe requirements MPC2 compatible CD-ROM drive, sound-board and speakers; 486 or higher; MSDEX2.2 or higher; 8 MB RAM, total 24 MB free on hard disk; 256-color VGA or SVGA video; optional Hayes compatible modem.

NEW! Additional DOS "faster-easlers."

Transfers between accounts are now easier with the new transfer form.

Now you can instantly access graphs from the register, redo your last graph, access your last four graphs and create graphs with name/date ranges.

New global find automatically finds any transaction in any register. Also, you can remove splits with a keystroke. There's new fiscal-year reporting and budgeting for businesses – and much more.

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New Quicken Tax Guidebook – Plan ahead to minimize taxes with Quicken. This could easily pay for your upgrade.
New Tax Link Assistant – Makes organizing Quicken data for taxes even faster and easier.
Improved Quicken Home Inventory™ – Organizes all your household possessions in about an hour. Includes new Insurance Claims Tracking and more.
New Tradeline® Stock Guide – Provides historical market performance on disk.
Improved Quicken Quotes™ – Up-to-date information on over 100,000 securities via modem.
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The next version of Windows will be easier to use, more powerful, and end world hunger. But you can't buy it now. Too bad, because from everything we've seen, it will be a killer operating system. And not a moment too soon. DOS, despite its pervasiveness, is a technological dead end. This year, the heavy action was on the graphical front: Windows for Workgroups 3.11 gave us easy connections to our local networks. With OS/2, we got a pretty face and a powerful body. And with Windows NT, we began to usher in the future of Windows: It's fast, hard to crash, and designed for large and small networks. What makes an operating system an MVP finalist? Technical strength counts for a lot—but so does the availability of applications. The most valuable operating systems—this year's finalists—work with the hardware we have and the software we need.

Windows for Workgroups 3.11

94

This is the operating system Windows should have been. It's easier to use and faster than Windows 3.1, and it has built-in network support for sharing printers, disk drives, even modems. Windows for Workgroups 3.11 also supports Novell NetWare, Banyan Vines, and other networks while simultaneously running its own network protocols. But you don't need to be networked to take advantage of Windows for Workgroups. The speed improvements and usability tweaks in this version work for anyone. And of course, Windows runs every major app under the sun. But the most interesting part is Microsoft's At Work technology. True, there aren't a lot of fax machines and copiers on the market that support it, but it's the beginning of the real integrated office. Windows for Workgroups 3.11 is going to be eclipsed by Windows 95 shortly. But for now, it's the most valuable operating system available.

Microsoft / (800) 426-9400 / $132 / *Reader Service No. 741*

Windows NT 3.1

Does Windows 3.11 seem a bit poky to you? Try running it on a 24-Pentium Sequent. Windows NT has the 32-bit, multithreaded, multiprocessing underpinnings to do just that. Today's Version 3.1 is the best incarnation of Windows NT available, and the upcoming Version 3.5 should be even more reliable. This is an operating system to watch.

Microsoft / (800) 426-9400 / $285 / *Reader Service No. 742*

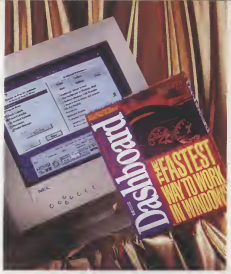
IBM OS/2 2.1

If OS/2 is so technically wonderful, why aren't there more applications for it? Because you don't need them. IBM OS/2 2.1 runs most Windows and DOS applications at least as well as Windows 3.11 does. But we're hungry for the next version, the version that's going to support multiple processors. That's what we want to be running.

IBM / (800) 342-6672 / $159 / *Reader Service No. 743*

MVP DECISION MAKER

The ubiquitous OS, with easy networking as a bonus	Windows for Workgroups 3.11
A bulletproof desktop operating system	Windows NT 3.1
The operating system of tomorrow . . . today	IBM OS/2 2.1



Dashboard 2.0

What's the sound of one button clicking? Dashboard 2.0, the Zen master of Windows shells. This program enhances Windows with an ultrasimple replacement for the Program Manager and a few very useful utilities. It lets you launch apps with a single click, print faster by just dragging files to an icon, and monitor system resources and capacity. There's also a virtual desktop to give you more breathing room. All this for less than $50 and 2MB of disk space. It's simply the best Windows shell available (it won our 1993 MVP System Utilities Award). In fact, several power users at *PC Computing* who had been using other Windows shells this year switched to Dashboard. Version 2.0 is a unique achievement at a time when most applications and operating systems are getting bigger and more complicated. But that's not what computing is about. It's about productivity, usability, and simplicity, and that's what Dashboard 2.0 gives you.

Hewlett-Packard / (800) 554-1305 / $47 /
Reader Service No. 744

MVP DECISION MAKER

The best and cleanest Windows interface	Hewlett-Packard Dashboard 2.0
The ultimate assortment of Windows and DOS utilities	Symantec PC Tools 2.0 for Windows
An easy way to remove unwanted Windows apps	MicroHelp UnInstaller 2

MVP System Software: Utilities

Name an operating system that meets all its users' needs and doesn't leave them wanting more utility. OS/2? Not quite. The Macintosh Finder? Closer, maybe. Unix? Sure, if you dream in C. Windows? Well. . . . The three MVP finalists here all take that most used (and cursed) operating system, Windows 3.11, and increase its functionality either through an improved interface, additional maintenance utilities, or important functions that the Windows programmers just plain left out. Our favorites let us tune up Windows in the ways we like. Of course, some utilities (like those covered here) may be obsolete the day Windows 95 ships. Or maybe they'll evolve into full 32-bit utilities that fill the gaps in the new Windows code. Because Windows 95 will certainly have its own gaps—let's call them "opportunities"—that next year's crop of MVP finalists will address.

PC Tools 2.0

This is the Sears catalog of Windows utilities. PC Tools 2.0 for Windows is a storehouse of fine applications for managing both your DOS and Windows environments. It has a variety of utilities, including file unerase, backup, antivirus, disk repair, and a file manager that's better than Windows' own. It's the best collection of Windows power tools around.

Symantec / (800) 964-6896/ $91 /
Reader Service No. 745

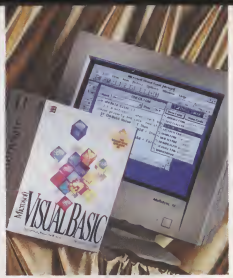
UnInstaller 2

Get rid of your old Windows applications. Just try. Most apps muck with your system files and scatter DLLs, fonts, and flotsam all over your hard disk. Recovering this space can be like exterminating a colony of ants one by one. MicroHelp's UnInstaller 2 is an easy-to-use, powerful tool designed to quickly remove the stuff you don't need anymore.

MicroHelp / (800) 922-3383 / $43 /
Reader Service No. 746

MVP System Software: App Development

Telling someone to change his application development tool is like telling him to switch religions—you're going to get an argument. But this year it might be easier, based on the great features we saw in our application development finalists. Microsoft's Visual Basic, PowerSoft's PowerBuilder Desktop 3.0a, and Borland's C++ 4.02 all have unique feature sets that make them the best tools in their classes. Need to create client-server applications? Multimedia programs? Applications to run on Windows 95? To run your new applications and to update existing ones, you'll need a toolkit that handles the strange new shapes of today's—and tomorrow's—applications. These three products all offer different ways to get the hardest jobs done. The challenges programmers face are constantly evolving, and you have to adapt. So belly up to the bar and have a taste of a new development environment.



Visual Basic 3.0

94

Microsoft gave Basic a huge overhaul in 1990, and people flocked to it like a free lunch. Now that it's in Version 3.0, Visual Basic is just too good to pass up. Granted, it's not the tool for developing crash-proof online transaction-processing programs or a compute-intensive graphical simulation. But it's by far the best way to rapidly develop or prototype applications, design a front end to almost any database in the world, or create your first Windows program. Visual Basic has broad capabilities such as client-server development, thanks to the included Microsoft Access database engine, called Jet, and the Crystal Reports database reporting tool. It can create OLE 2.0 applications, and the included Windows 3.1 API reference tells you almost everything you need to know about creating consistent Windows applications. Best of all, Visual Basic has marvelous custom control capabilities (through its VBXs) that you can exploit by buying one of the many third-party libraries available.

Microsoft / (800) 426-9400 / $295 / *Reader Service No. 747*

PowerBuilder Desktop

This program does one thing better than any other tool on the market: develop client-server database applications. Just start up PowerBuilder Desktop 3.0a's Window Painter, and you can draw a working client-server application in a snap. For serious front-end database programming, PowerBuilder Desktop has no equal.

PowerSoft / (800) 273-2841 / $249.99 / *Reader Service No. 748*

Borland C++ 4.02

The AppExperts and ClassExperts in Borland C++ 4.02 make the exasperating process of maintaining a C++ project easy. The compiler generates code that's both concise and fast, and the debugger makes tuning and troubleshooting a snap. Microsoft's Visual C++ is almost as good, but Borland's C++ has a better development environment.

Borland Int'l / (800) 233-2444 / $330 / *Reader Service No. 749*

MVP DECISION MAKER

The best way to develop Windows applications quickly	Microsoft Visual Basic 3.0
An amazing tool for building client-server front ends	PowerBuilder Desktop 3.0a
The best C++ object-oriented programming environment	Borland C++ 4.02

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Al Gore and *Time* magazine have just recently discovered what die-hard online junkies have known for years—there's a vast virtual world of information out there, and it's no further than the nearest modem. But unless you're conversant in AT command strings, you can't get to it without a good communications program. And then there's fax support—while modems incorporated fax support ages ago, until this year you had to buy separate software to take advantage of it. Now all of the major communications packages include robust fax features. Naturally, most of these programs make it easy to connect to hosts, transfer files, and build scripts automatically. What's next for communications software? Direct Internet access is around the corner, and with a new breed of digital-signal-processor–based modems hitting the market, voice and scanner support can't be far behind.

WinComm Pro 1.1

Long known for WinFax Pro, Delrina enhanced its modem management capabilities with WinComm Pro 1.1, a full-featured communications suite. Its Fax Broadcast feature lets you send and receive faxes via MCI even when you're on the road.

Delrina / (800) 268-6082 / $129 /
Reader Service No. 752

LapLink for Windows

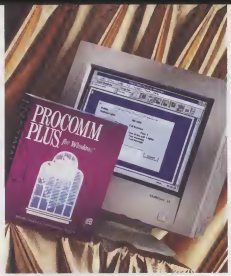
Traveling Software added a Windows interface and integrated remote control to the file transfer power of LapLink. Combined with wireless support and file synchronization features, LapLink for Windows is the best way to keep your PCs in step.

Traveling Software / (800) 343-8080 / $140 /
Reader Service No. 753

E-Mail Connection 2.0

Too many of us have too many e-mail addresses. E-Mail Connection 2.0 cuts through it all by offering a way to integrate your mail systems. It picks up all your mail and funnels it into one inbox. If you spend time using e-mail, it's a must.

ConnectSoft / (206) 827-6467 / $50 /
Reader Service No. 754



ProComm Plus 2.0

94

This old standby continues to set the standard for communications software. There's a new, completely standard Windows interface, a more powerful scripting language, and new usability features like drop-down dialing lists and programmable button bars. But what really sets ProComm Plus 2.0 for Windows apart are its fax features–the best of any communications program. In addition to the expected send and receive capabilities, cover-sheet editors, and viewers, you can send faxes from within other applications and poll remote fax machines. You can even use ProComm Plus to set up a fax-back service. This is by far the most valuable communications utility around.

DataStorm Technologies / (800) 315-3282 / $179 /
Reader Service No. 751

MVP DECISION MAKER

The best communications and fax utility program	DataStorm ProComm Plus 2.0 for Windows
Superior fax control with links to MCI features	Delrina WinComm Pro 1.1
Speedy remote control and file transfer for Windows	Traveling Software LapLink for Windows
The best way to manage mail from multiple e-mail systems	ConnectSoft E-Mail Connection 2.0

Mosaic

If the Internet is hot, the World Wide Web is superheated plasma. The Web is a loose information service on the Internet that's based on a multimedia hypertext document format that anyone can use to open a virtual kiosk, store, newspaper, or information service to the world. Its hypertext linking makes Net navigation easy, and of the few Web browsers available, Mosaic has the best tool to access it all. Mosaic includes support for Gopher searches, file transfer protocol, and more. This killer app for the Internet is easier to use than Windows Help and far more useful. Best of all, it is completely, utterly *free*—available to anyone via Internet file transfer.

NCSA / send e-mail to www.ncsa.uiuc.edu / free

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MVP DECISION MAKER

The best way to access the World Wide Web	NCSA Mosaic
An integrated Internet suite bundled with a dial-up service	Netcom NetCruiser
The most usable commercial online service	America Online
The ultimate CompuServe access kit, with WinCIM	CompuServe CD

MVP Networking: Online Services

Knowledge alone is not power. But how quickly and easily you acquire and act on information can be very powerful indeed. With the continued advancement of the Internet and commercial online services, quick and easy acquisition of information has reached new heights, which is why 1994 marks the entry of an entirely new MVP category—Online Services. Whatever information you're looking for, there's a good chance you'll find it online, either on a service like CompuServe or through the anarchistic Internet. Need the latest 49ers score? Looking for a venture capitalist to fund your entrepreneurial vision? The information is out there. We considered a dozen service/software combinations to come up with our four finalists. These products represent the best options for acquiring the online information you need to compete and succeed.

NetCruiser

An Internet suite, NetCruiser is combined with Netcom's Internet service and provides e-mail, FTP, Telnet remote access, Gopher server searches, World Wide Web, Usenet news, and more. It's a one-stop Internet shop.

Netcom / (800) 353-6600 / $25 startup, $19.95 per month for basic service / *Reader Service No. 756*

America Online

When it comes to online service usability, nothing beats America Online. A million subscribers take advantage of its e-mail, interactive newspapers, and conferences. And now America Online supports Internet access as well.

America Online / (800) 827-6364 / $9.95 per month for five hours / *Reader Service No. 757*

CompuServe CD

A multimedia extension to CompuServe, CompuServe CD includes sound, graphics, and video. The disc also has WinCIM, the Windows-based access program. This combination will dramatically lower your online costs.

CompuServe / (800) 848-8199 / $2.95 (after $5 online usage credit) / *Reader Service No. 758*

MVP Networking: Operating Systems

There's one maxim of computers we all know too well: Good enough is neither. Suppose that two years ago you had five PCs and a printer. You wanted to share the printer, so you installed a tiny network. Well, that network was so darn useful that everyone wanted to be on it. Today, you have 50 PCs, 2 servers, and 5 printers, you just hired another 20 people who are going to dial in to your LAN from the road. You need a serious network operating system. Novell, the granddaddy of NOS software, has two solutions for you: NetWare 4.02 with its NetWare Directory Service, and NetWare 3.12 with its NetWare Name Service. And knocking on the door is Microsoft's Windows NT Advanced Server 3.1. As we evaluated the choices in this category, we looked for three factors: how easy it is to extend the network, manage it, and use it. All of our finalists are good solutions.

Windows NT Advanced Server 3.1

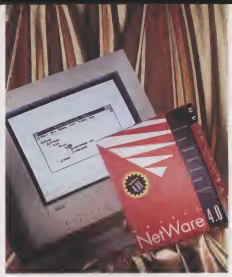
It's the ten-minute network. Pop in the CD, answer a handful of questions, and Windows NT Advanced Server 3.1 figures out what hardware you have, configures the drivers, and even orders lunch. It's the perfect solution for anyone who's considering setting up a small or medium-sized LAN today.

Microsoft / (800) 426-9400 / $707.50 / *Reader Service No. 760*

NetWare 3.12

Still holding its own against ever-increasing competition, NetWare 3.12 doesn't represent a giant step forward for networks. It represents the kind of gradual refinement to a product that whispers "stability." If you want a network that doesn't crash—and for which you can hire a sysadmin with a single ad in the paper—you want NetWare 3.12.

Novell / (800) 453-1267 / $1,819 / *Reader Service No. 761*



NetWare 4.02

94

Use NetWare 4.02 to organize your network. It takes all the stray pieces—servers, printers, gateways, user IDs, and the like—and fits them together into a whole that you can manage with just a few people. It works this magic with its NetWare Directory Services. While some other network operating systems are busy messing around with binderies and domains, NetWare 4.02 is setting up a directory service so you can get to anything on your network from anywhere. But that's not all. If that nearby printer goes down, NetWare 4.02 figures out what the next nearest printer is and reroutes all of your print requests. And what if the network volume that holds your data starts to fill up? It used to be that someone had to install a larger hard disk. No more: NetWare 4.02 has built-in, on-the-fly disk compression that works at the click of a button. If your network needs are big and tall, NetWare 4.02 is a great fit.

Novell / (800) 453-1267 / $2,700 for 25-user license / *Reader Service No. 759*

MVP DECISION MAKER

A structured way to link 1,000 computers	Novell NetWare 4.02
An easy and very fast LAN operating system	Microsoft Windows NT Advanced Server 3.1
Stability plus compatibility with NetWare software	Novell NetWare 3.12

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MVP Networking: Management

Keeping servers from crashing, replacing someone's CONFIG.SYS file, tracking installed PCs, scanning for viruses, running router diagnostics, finding time for lunch—these are all problems faced by today's network administrators. They can be solved, but you'll need a dozen applications to do it. None of the finalists in this category—Intel's LANDesk Manager, Symantec's Norton Administrator for Networks, and Novell's NetWare Management System 2.0—will handle every network problem you have, but each excels in a particular area. For the future, we look toward the continued adoption of existing management standards to tie networked machines and their management applications together. In the meantime, break out the checkbook and make a trip to the software store for one of these indispensable utilities.

Norton Administrator for Networks

You can handle three of the most troublesome tasks in network management with Norton Administrator for Networks: track assets, distribute software upgrades, and meter usage. It's a great way to monitor network activity and ensure compliance with your software licenses. And it's all tightly integrated.

Symantec / (800) 441-7234 / $236 / *Reader Service No. 763*

NetWare Management System 2.0

Using SNMP and NetWare, Novell's NetWare Management System 2.0 helps you build a centralized, integrated LAN management application. It lets an administrator do everything from map the network to maintain NetWare for SAA servers. If you manage a complex NetWare shop, it's a priceless utility.

Novell / (800) 638-9273 / $1,875 / *Reader Service No. 764*

LANDesk Manager

94

For managing desktop computers, as well as server resources, this package is hard to beat. The tools in LANDesk Manager's integrated environment let you remotely manage printer queues and printers with drag-and-drop ease, watch overall network packet traffic (or just the traffic generated by your new e-mail system), and show a distressed user how to tackle an application or copy files to the system. There's more: LANDesk Manager will do a hardware inventory of the network or scan for the latest polymorphic virus. It's all right there. And because some users aren't always attached to the network, a lot of these features work via remote access as well. For a Novell network of just about any size, this is a must-have utility. And if you combine LANDesk Manager with Hewlett-Packard's OpenView, Novell's NetWare Management System, and Synoptics' Optivity, you have everything you need to take on the most wildly divergent LANs.

Intel / (800) 538-3373 / $1,200 / *Reader Service No. 762*

MVP DECISION MAKER

Manages networked desktop PCs with ease	Intel LANDesk Manager
Keeps your applications up-to-date and under control	Norton Administrator for Networks
Offers high-end management for a big NetWare LAN	NetWare Management System 2.0

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There's a better way. It's System Consultant, the latest feature from PC Tools™ for Windows. It can keep your system tuned, and give you more control over your Windows configuration. At a mere fraction of the cost of hiring a live consultant to do the job.

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If we had to pick one application to tout as the most important, indispensable, and crucial piece of your enterprise, it would be e-mail. Some of the reasons are obvious: E-mail provides the reliable communication any group needs to work effectively, saves time and money, and boosts productivity. And more and more vendors are shipping mail-aware applications that let you turn any stand-alone software package into groupware. Done writing that report? Just click a button and send it to your boss for comments. Likewise, electronic forms, software suites, and group schedulers can all be made more robust—read, *productive*—by adding messaging. And a good standards-based e-mail package can keep you in touch with your business partners and open the window onto a world of electronic commerce as well. It may be the best single investment you make in your business's future.

Mail 3.2

By incorporating Mail into Windows for Workgroups, Microsoft unleashed e-mail on users who had never experienced the power of messaging. But it didn't stop at the desktop: Mail has outstanding remote features as well. And since support for Mail is integrated into most current business applications, it's always just a click away.

Microsoft / (800) 426-9400 / $695 for ten users / *Reader Service No. 766*

GroupWise 4.1

Nothing displays the power of electronic mail and messaging like GroupWise 4.1, the latest incarnation of WordPerfect Office. GroupWise includes not just a powerful rules-based mail package and application launcher, but integrated personal and group scheduling and task assignment as well, making it the perfect online office manager.

Novell / (800) 453-1267 / $695 for five users / *Reader Service No. 767*

cc:Mail 2.0

94

Don't take our word for it—just ask any of the millions of cc:Mail for Windows users who have made this the most popular mail package on the planet. This is truly a best-of-breed program: best front end, best feature set, best multiplatform support. Version 2.0 is notable primarily for its spruced-up client interface. Like other Lotus programs, cc:Mail 2.0 for Windows includes SmartIcons with bubble help, which make any operation, from sending a message to organizing your in-box to setting up rules, just a matter of a mouse click or two. Users can tailor the interface to their needs, thanks to customizable button bars and sizable message panes. And with advanced features like rules-based messaging, full-text search, BBS-style public folders, an attachment viewer, and an application launcher for other Lotus programs, you'll run out of problems before cc:Mail runs out of solutions.

Lotus / (800) 448-2500 / $95 per user / *Reader Service No. 765*

MVP DECISION MAKER

The best all-around, end-user mail package	Lotus cc:Mail 2.0 for Windows
Robust remote capabilities and supported by major apps	Microsoft Mail 3.2
An easy-to-use all-in-one mail and group scheduler	Novell GroupWise 4.1

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PC MAGAZINE EDITORS' CHOICE
March 16, 1993
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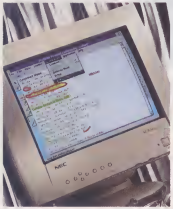
Groupware used to mean Lotus Notes, first and foremost. Notes demonstrated that the future of computing was not simply in automating traditional business practices but in solving problems people didn't even know they had. While Notes shaped the groupware landscape, it no longer dominates. In the increasingly virtual world we work in, collaboration has taken on a whole new meaning. This year, videoconferencing probably had the biggest impact on the groupware category, but not for the reason you might think. In fact, video became almost irrelevant in the face of the desktop collaboration tools like shared whiteboards and application sharing. While the days of conference rooms and coast-to-coast commuting are hardly numbered, today users have several creative options that let them work hand-in-hand without actually being face-to-face.

Share

Call this one Notes Junior. Share consists of BBS-style forums that let users within a group hold discussions and share documents, but without the high-end headaches of wide-area replication. User friendly from installation to administration, Share is an excellent, inexpensive approach to groupware—and a great introduction to the field.

Collabra / (800) 474-7427 / $70 list per user / *Reader Service No. 769*



ProShare

This desktop collaboration package gives you everything you need to work with a remote user on live documents. Mark up diagrams, annotate spreadsheets, and save your changes on both ends simply by clicking a few buttons. And if desired, ProShare also offers live videoconferencing. It's the next-best thing to being there.

Intel / (800) 538-3373 / $299 list per user / *Reader Service No. 770*

OpenMind

94

Lotus may have pioneered the groupware concept with Notes, but DCA has exploited it to the max with OpenMind. Like Notes, OpenMind is a replicated discussion and document database. But it comes out of the box with features Notes has taken three revisions (and counting) to incorporate, including cross-platform support, full-text indexing, and most importantly, an intuitive, fully graphical interface. The OpenMind client makes it a snap for users to navigate through sections of the Mind, participating in discussions, searching the document databases, and viewing files. Unique usability touches include a Transcript view that lets users see threaded comments and responses in a single window—as opposed to having to open and close messages to follow a discussion—and a Track view that notifies you of changes and updates to relevant databases. Setting up the server software is also mercifully straightforward.

DCA / (800) 348-3221 / $995 list for server, $275 list per client / *Reader Service No. 768*

MVP DECISION MAKER

Full-blown discussion and document databases	DCA OpenMind
Discussion forums that are simple to use and install	Collabra Share
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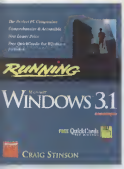

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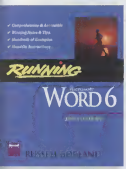

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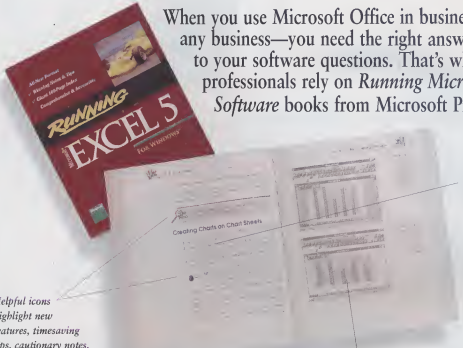

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Multimedia isn't just for fun. As a tool for educating our kids or our employees, captivating audiences with sound and video, and winning the attention of an ever-more-fickle public, it has increasingly important applications. But someone has to write all those applications. And it takes more than just the raw data and presentation clips that make them up, you need the logic and branching that make them interactive. The most productive multimedia authoring tools, including Macromedia's powerful Director and Asymetrix's easy-to-use Multimedia ToolBook, make short work of programming so you can focus on content and leave the hard part to the authoring system. But because no one tool does everything, you might need a specialist like Autodesk's 3D Studio, a program for creating gorgeous 3-D graphics that you can export into Director or ToolBook.

3 D Studio Release 3.0

A high-end professional graphics tool, Autodesk's 3D Studio Release 3.0 was used in the creation of popular games such as Trilobyte's The 7th Guest. Its images have also been seen in major motion pictures. This DOS-based product is not easy to learn or use, but it brings professional modeling and rendering prowess to the PC.

Autodesk / (800) 879-4233 / $2,200 /
Reader Service No. 776

Multimedia ToolBook

If you write tutorials and online manuals—as an in-house developer or for a commercial endeavor—Asymetrix's Multimedia ToolBook offers computer-based training tools beyond compare. Because of its ease-of-use and branching capabilities, and the royalty-free runtime, Multimedia ToolBook is also terrific for designing kiosk applications.

Asymetrix / (800) 448-6543 / $350 /
Reader Service No. 777

Director 4.0

94

Whether you need to develop a presentation, interactive sales kiosk, or edutainment title, Macromedia's Director 4.0 packs the right tools for your project. Traditionally a Macintosh application, and new this year to Windows, Director uses an unusual but apt stage metaphor. Each multimedia element is a character in the cast, and a score keeps the cast—including sound and video clips—in order (meaning it synchronizes all of the activities). This graphical drag-and-drop environment features an English-like scripting language, Lingo, that adds object-oriented elements and highly refined interactive controls to your application. Director is a big-league development tool, responsible for the famous multimedia apps Just Grandma and Me, Alice to Ocean, and Iron Helix. It's a true cross-platform (Mac and PC) application that's good enough for the pros and more than adequate for most in-house multimedia applications. If you need to create dazzling multimedia apps, pick it up.

Macromedia / (800) 288-4797 / $300 /
Reader Service No. 775

MVP DECISION MAKER

Best toolkit for cross-platform multimedia development	Macromedia Director 4.0
Powerful program for graphics and animation	Autodesk 3D Studio Release 3.0
Easy tool for creating in-house training applications	Asymetrix Multimedia ToolBook

Visio 3.0

Click, drag, done. That's about how easy it is to build sophisticated organizational charts, total quality management diagrams, flowcharts, maps, and other business graphics with Shapeware's Visio 3.0. Ditching the classic pencil and paper drawing tools you'll find in graphics programs designed for artists, Visio instead opts for the drag-and-drop approach. To create a flowchart, for example, simply call up the appropriate flowchart stencil, drag the shapes and connectors to the paper, and you're on your way to a professional business graphic. It's even easier to use than it sounds. Visio integrates seamlessly into Microsoft Office and Lotus SmartSuite applications, and will even morph its interface to match. And because it suits so many purposes—from floor-plan design to flowcharting—you needn't buy and learn several programs for each task. This is one business utility that belongs on every Windows hard drive.

Shapeware / (206) 521-4500 / $149 /
Reader Service No. 778

MVP	DECISION MAKER
Sophisticated but easy business graphics	Shapeware Visio 3.0
Seductive learn-to-draw program for everybody	Fractal Design Dabbler 1.0
Soup-to-nuts graphics and publishing solution	CorelDraw 5

MVP Multimedia: Graphics Software

Doodlers, dabblers, flowcharters, and fine artists all had reason to cheer this year: Never has it been so easy to create eye-catching graphics on a PC. And never have there been so many choices. Shapeware's Visio 3.0 brings business users the power to pull together workaday business graphics easily with simple drag-and-drop tools. Professional artists who need precision drawing have a new version of Aldus FreeHand 3.0 to consider, as well as the revamped CorelDraw 5 (Corel not only updated the Draw module and other features in its graphics toolkit, it also threw in a desktop publisher). Also hot is Fractal Design's Dabbler, a natural media learn-to-draw program with an irresistible interface. We also caught an early look at Fractal Design's high-end Fractal Painter 3.0. The new version wasn't shipping in time for MVP Award consideration, but it definitely gets two thumbs up.

Dabbler 1.0

If you know how to hold a crayon, you can learn to draw beautifully with Fractal Design's Dabbler, a remarkably simple and seductive Windows program. Dabbler's innovative interface is clean and nearly wordless. Brushes, pencils, crayons, and paper are represented as icons and even make the same sounds as their real-life counterparts.

Fractal Design / (408) 688-5300 / $69 /
Reader Service No. 779

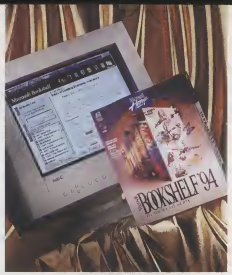
CorelDraw 5

The most comprehensive suite of professional-level graphics utilities on the planet is CorelDraw 5. New in this version of the best-selling toolkit is support for OLE 2.0, powerful new color management, improved performance, and Ventura Publisher, making the Corel suite a complete publishing solution.

Corel / (800) 778-3332 / $549 on CD /
Reader Service No. 780

MVP Multimedia: CD-ROM Titles

A CD platter can hold a half-gigabyte of data or 74 minutes of high-fidelity CD audio. So why are so many CD-ROM titles a bunch of low-rent, public-domain filmstrips? We don't know, but we've seen the good, the bad, and the ugly pass through our dual-speeds—and there are enough good ones these days that we can afford to ignore the rest. We appreciate that CD-ROM vendors have a difficult balancing act to perform. They have access to great video clips—but they are constrained to showing them in small windows. The companies that make the most of these limitations are this year's MVP finalists. For reference, we liked Microsoft Bookshelf; for fun, it was Broderbund's Myst hands down; and for education, it was the Discovery Channel's stirring rendition of the D-day invasion. Of the many titles that crossed our desks, these are the ones that stayed there.



Microsoft Bookshelf

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The roster of reference works in Microsoft's Bookshelf 1994 is practically a volume in itself: *The Concise Columbia Dictionary of Quotations, The American Heritage Dictionary of the English Language, The Original Roget's Thesaurus, The People's Chronology, The Concise Columbia Encyclopedia, The Hammond World Atlas,* and the *World Almanac and Book of Facts 1994*. The amazingly complete references are only part of the story, however. Animations and video clips illustrate sundry encyclopedia entries. Even the guide to pronouncing 80,000 words is nice (although including all 350,000 words would be nicer). But those aren't all the reasons Bookshelf is the winner. The QuickShelf toolbar that rests on top of any open application is a strong addition to any reference. Add in the wicked-fast searches and the clean, icon-driven interface (a boon even for seasoned reference workers), and you have a tool for information at your fingertips. Toss out your shelf of reference books and stick with this CD instead.

Microsoft / (206) 882-8080 / $79 / *Reader Service No. 781*

Myst

Type A personalities, look elsewhere. But if you're after an absorbing mind game with beautiful 3-D graphics and a soothing soundtrack, Broderbund's Myst is it. If you don't know what you're supposed to be looking for, who cares? It's worth spinning again and again anyway.

Broderbund / (415) 382-4400 / $60 / *Reader Service No. 782*

Normandy

Right from the gripping opening chords of the Discovery Channel's CD-ROM Normandy: The Great Crusade, you're hooked. And this isn't just a game. It's real life, the terrifying story of the Allied invasion of Europe in 1944. It's history the way it should always be taught—with profound research and excellent production values.

Discovery Channel / (301) 986-0444 / $50 / *Reader Service No. 783*

MVP DECISION MAKER

Indispensable writer's reference library on disk	Microsoft Bookshelf 1994
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Most impressive, informative CD documentary we've ever seen	Normandy: The Great Crusade

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7
8

Here's the recipe. It begins with nine scanned images of restaurants, tables, chairs, a waiter, picture frames and a dinner to die for. Background layer ❶ holds master image. On another layer ❷, sections of two restaurants complete overall scene. Layer Masks are used to hide unwanted portions of image. Wine bottle shadow ❸ is extended using airbrush on Fade setting. Replace Color feature ❹ changes color of wine from red to white. Lighting Effects filter ❺ is used to reduce ambient light and add highlights that reflect multiple light sources. Color Range feature ❻ isolates waiter (originally shot against textured wall), and he is placed in the scene. Mirror images ❼ are copied to multiple layers where they are scaled, composed and further manipulated. Clouds filter ❽ creates window to outside world. Original photographs by Robert Mizono.

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MVP Best of the Best: Innovation

Every time we think we've seen it all—the best, the easiest, the most amazing product—the computer industry dazzles us with some utterly new concept. The kind of product or service we call a *head slapper*—you say, "Why didn't I think of that?!" and slap yourself on the head. In 1994, usability and integration led the innovations. The contenders in this category included a dozen new (or newly accepted) products selected because of their broad applicability and the potential to make our lives easier. Because easier products mean more productive workers, we think that adopting this year's innovation finalists into your company will ultimately save you money. And that's what computers are all about, isn't it? But the most innovative product this year is more than usable, more than another slick product. It's a global standard for publishing information, and it's already changing the nature of computing and how we think about communications. The existence of the World Wide Web is more than ample reason to get yourself onto the Internet immediately so you can see the global village building itself right before your eyes.

MVP DECISION MAKER

Internet's killer app and a great source of online info	World Wide Web
The hardware standard to make installing cards easy	Plug and Play
Finally, CD-ROM installation made cheap and fast	Enhanced IDE

World Wide Web

94

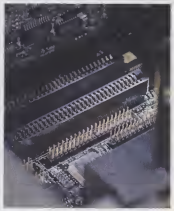
The Web is a new medium for information publishing. Just as the laser printer and the PC opened up the magazine business to anyone with a smattering of talent and few bucks for hardware, the World Wide Web makes publishing information electronically as easy as creating a "home page" and posting it on a server somewhere. Well, maybe not quite *that* easy. In truth, it's really the potential of the Web that won this award. Pick up any Web access software (such as Mosaic—it's free), connect yourself to the Net, and you can see an amazing diversity of information, even at this early stage of the Web's evolution. From stock prices to traffic updates, from weather maps to subversive haiku—if it can be conceived, it can be posted on the Web for all to read.

CERN: European Organization for Particle Research / 41-22-767-5905 / *Reader Service No. 786*

Plug and Play

Install a card in a PC without setting jumpers or installing software? For ten years, that's been a cruel fantasy. Macintosh users laughed at us while we cut our fingers on the back of printed circuit boards. But no more! Plug-and-Play hardware, appearing for the first time this year, makes installing a new peripheral as easy as (Apple) pie.

Intel / (800) 628-8686 / Microsoft / (206) 882-8080 / *Reader Service No. 787*



Enhanced IDE

Everybody wants a CD-ROM drive, but we don't know anybody who enjoys wrestling with finicky nonstandard sound cards or SCSI adapters. The new Enhanced IDE standard solves this elegantly: Your CD-ROM drive plugs in as easily as an IDE hard disk. And IDE CD drives are less expensive, too. What's the catch? There is none.

Western Digital / (800) 832-4778 / *Reader Service No. 788*

NCSA Mosaic - The World Wide Web Initiative: The Project
File Edit Options Navigate Annotate Starting Points Personal Help
URL http://info.cern.ch/hypertext/WWW/TheProject.html
World Wide Web Initiative
The WorldWideWeb (W3) is the universe of network-accessible information, an embodiment of human knowledge. It is an initiative started at CERN, now with many participants. It has a body of software, and a set of protocols and conventions. W3 uses hypertext and multimedia techniques to make the web easy for anyone to roam, browse, and contribute to. Future evolution of W3 is coordinated by the W3 Organization.
Everything there is to know about W3 is linked directly or indirectly to this document
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News groups, specialized mailing lists, W3 interactive talk, first and second conferences.
NEC

MVP Best of the Best: Usability

The fastest, feature-rich, best-performing product is worthless if you can't use it. But what makes a product usable? A program that adjusts to the way you work (instead of the other way around) is usable. A piece of hardware that is up and running ten minutes after you unpack it is usable. How about a product that makes you feel like a techno-whiz, not a techno-wimp; or a piece of software so intuitive you find that you've been using it for six months before you open the manual? We've seen them all in the *PC Computing* Usability Labs. From marvels of intuitiveness to ergonomic disasters, they all pass through our hands. Fortunately, most of today's products are pretty well designed. It wasn't easy to pick just three finalists from a field of dozens of highly usable products. Our winners deliver power, productivity, and a sense of satisfaction that has not historically been associated with computer products.

PaperMax

94

Right from the start you'll notice that there are a few things different about Visioneer's PaperMax scanner. It fits on a desk—even a really cramped one—and it comes with only a single floppy disk. Plug the scanner into your serial port; there's no interface board to install and no complicated software. But this seemingly simple package is actually a complete personal document-management system capable of scanning, storing, and managing hundreds of documents. Once installed, the MaxMate software sits in the background waiting for you to feed it a sheet of paper. When you do so, the scanner zips your page through in just a few seconds, and MaxMate wakes up and stores a 200-dpi electronic image of your document. Retrieving a document is just as easy. It all happens so fast and with so little drama that this product can vanish into your ordinary workflow almost immediately. PaperMax isn't just easy to use, it's darn near invisible. The way computer tools are supposed to be.

Visioneer / (800) 787-7007 / $499 list /
Reader Service No. 789

Quicken for Windows

This product takes the unpleasant and confusing task of managing personal finance and makes it more than easy. Quicken groupies say they now find balancing their checkbooks actually *fun*. We don't know if we'd go that far, but Quicken for Windows CD-ROM Deluxe Edition is doubtless the ultimate, crystal-clear window into your banks and books.

Intuit / (800) 433-8810 / $49 /
Reader Service No. 790

Fax Modem with XJack

Hardware doesn't get much easier to use than this: Slide a 14,400-bps PCMCIA Fax Modem with XJack into your portable, pop out the clever telephone connector, and insert your phone cord. No worries. *PC Computing* editors tend to hang on to their XJacks longer than we keep the portables in which we use them. They're that good.

Megahertz / (800) 527-8677 / $249 /
Reader Service No. 791

MVP DECISION MAKER

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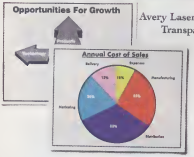

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Every year, hundreds of products catch our attention. Dozens of releases earn our respect. And then rarely, if we're lucky, a piece of technology rises above attention and respect, into the rare air where we can say about it, "This is the best product we've seen all year." It takes more than clean design to earn this award. More than performance. More than usability. It takes a product that evokes a visceral *I must have it* response. In 1994, there was one product that did that for us more than any other—one product with a magical blend of features, a superior design, and ultimate usability. A product like this doesn't come along very often.

Portégé T3600CT

94

This year there was one benchmark, one product with a clarity of engineering that rang like crystal: Toshiba's Portégé T3600CT. You'd think that when it comes to choosing a portable computer, the individualistic and quirky editors of *PC Computing* would all choose different products. Not so: Those of us who travel frequently all carry Portégés, by choice. We've found this notebook reliable, easy to carry, fast, and endowed of batteries long-legged enough to keep us computing nearly nonstop on our coast-to-coast hops. But the specs don't tell the whole story. Live with this machine for awhile and you'll learn to love its nubbin-head pointing device and its bright, clear screen. The whole machine is engineered like a Mercedes—solid, trustworthy, with ample reserves of power. And it impresses the heck out of your business associates. The Portégé T3600CT isn't the cheapest portable around, but it is built of the highest technology. Despite its price, its usability and functionality make it an incredibly valuable product—the Most Valuable Product of the Year.

Toshiba / (800) 253-5429 / $4,015 /
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There are three types of computer users: those who have lost data due to a power problem, those who are going to, and those who have protected themselves against the inevitable surge, blackout or brownout with the most reliable UPS they can buy: Back-UPS by APC. In fact, editors and users alike agree that if your system demands absolute reliability, you can depend on APC Back-UPS.

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PC MAGAZINE UK EDITORS CHOICE

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August 1993
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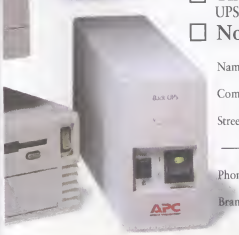

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Don Truax knows first hand about Back-UPS reliability: "It ought to be against the law to buy a computer without an APC Back-UPS 250. I recently had a direct lightning hit right outside the house...my computer never blinked. Each morning I get a surge down the line and both APC's hate it - they simultaneously 'holler 'n clamp' while my "Brand T" quietly sleeps in. I've relegated that unit to non-critical household stuff like my VCR."

Andrew Wargo, Manager at Baxter Land Company, tried two other brands before Back-UPS. "One lasted a few days, a second one went up in smoke after 48 hours, a third lasted less than 24 hours! I then brought my Back-UPS for less than half of what I had paid for the others. We've purchased three more Back-UPS and for the past 14 months they've been just hummin' away on the same power line that was eating the other brands alive!"

If you're protecting a network server, a communications interface port (on models Back-UPS 400 and higher) provides the security of an automatic shutdown to all major OS including NetWare, Windows, Windows NT, LAN Server, LAN Manager, LANtastic, SCO Unix, OS/2, Banyan Vines, AppleShare/System 7 and more, so your data is safe whether the system is attended or not. (PowerChute software and interface kits sold separately.)

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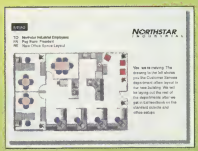

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SYNOPSIS

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You're the marketing vice president sitting at your desk in Bridgeport. She's a district manager tinkering at a PC in Los Angeles. You have changes for an upcoming budget proposal. You fax her. You phone her, then you fax her again. She doesn't understand what you're driving at. It's getting frustrating.

But there's no time for a face-to-face meeting . . . or is there?

There is if your PC is wired to the world with a videoconferencing system. Video meetings via PCs, known as personal or desktop videoconferencing, can put you face-to-face with a colleague who's nearby or across the country—albeit inside a small window on your monitor. Video lets you communicate crucial information you can't get by phone: Gestures and facial expressions become a key part of the conversation, just as they are in sit-down meetings. Better still, desktop videoconferencing lets you share notes, doodles, documents, and even applications as you talk.

But is all this cutting-edge technology worth the investment? At a typical minimum of $2,000 per PC (or "seat"), plus $100 or more a month for phone line costs, a desktop videoconferencing system seems like a pricey proposition. But if it cuts the number of $3,000 business trips between New York and San Francisco from a dozen to six, it pays for itself and then some. For two people in this situation, the annual cost of PC videoconferencing amounts to $6,400—easily offset by travel savings of $18,000.

Unlike group or meeting-room conferencing systems, which have been around for years and generally cost tens of thousands of dollars, personal videoconferencing takes the power of video phone calls to the place where most of us work—at our desks—and leverages the technology and know-how we've already invested in our PCs. A desktop videoconferencing system essentially turns your PC into a picture phone. Of course, the average PC video board and

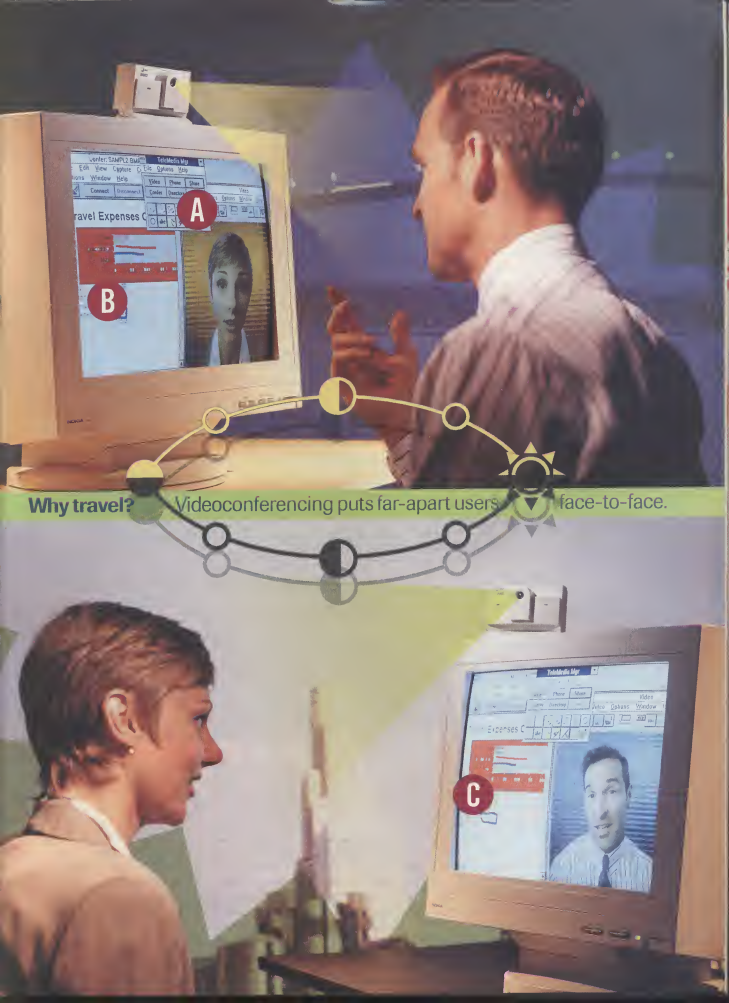
BY CHRIS O'MALLEY

A REAL-TIME VIDEO: Videoconferencing gives you face-to-face contact with the person you call—although video quality varies widely.

B DOCUMENT SHARING: Often more useful than video is the ability to share applications—two people can edit a live software document simultaneously.

C VIRTUAL CHALKBOARD: Shared whiteboard features also let callers annotate images, presentations, and documents with onscreen drawing tools.

PHOTOGRAPHS BY ROBERT CARDIN



Why travel? Videoconferencing puts far-apart users face-to-face.

modem aren't equipped to handle this sort of teletrickery, so you'll need special equipment at both ends of the connection to weave this magic. Typically, that means adding a monitor-top video camera, a board to digitize video and sound, a microphone, and an earphone or speakers.

Nor is the plain-old telephone system equipped to handle videoconferencing. The twisted-pair copper lines used for standard phone service were designed for low-bandwidth applications, including voice, fax, and data calls. So most desktop videoconferencing systems require a higher bandwidth connection, such as an Integrated Services Digital Network (ISDN) phone line and an appropriate communications adapter board (see "The Right Connection," page 226).

Document Sharing There's also more to videoconferencing than the video. Virtually all desktop videoconferencing systems couple video phone call functions with what's known as data or document conferencing. That means you not only can see each other's faces, you can view the same documents on your respective screens, or swap notes and drawings using software that simulates an electronic whiteboard or notebook. With some systems, callers can make changes to live documents in real time as well.

In fact, many businesses are finding that the video portion of videoconferencing is actually a distraction. Live video is what gets users interested, they contend, but the pictures themselves often do little to improve productivity or efficiency. Instead, it's video's less fetching yet more intelligent cousins—document and application sharing—that make more business sense. And both can be done far less expensively across standard telephone lines.

But the arguments against video may be shortsighted for some applications. Face-to-face meetings via PC screens can save time and foster better teamwork—even when the participants are in the same building. When participants are hundreds or thousands of miles apart, videoconferencing can save both travel time and expenses—including the substantial cost of plane tickets, hotel rooms, rental cars, and meals.

Virtual Office Desktop videoconferencing also stands to change how we define the "office." The ability to interact with colleagues over phone lines and see what they see in meetings makes the prospect of employees working at home—telecommuting—much more realistic. Not only does videoconferencing diminish the sense of isolation and uneasiness of being "out of the loop" that many employees experience when they work from home, it can make the transition much easier for supervisors accustomed to having staffers right outside their doors.

Desktop videoconferencing can assist with more than meetings. The combination of videoconferencing and computers is also ideal for remote training sessions. It potentially eliminates the need for centralized classes or centers, and reduces the need for roaming experts who travel continually. Desktop conferencing systems are also a natural for supporting far-flung computer users, pairing the comforting "presence" of an expert with onscreen cues.

And as the videoconferencing trend spreads, you may be able to communicate with customers, suppliers, and others outside your office through video calls. It may be years before that sort of interaction is routine, but it's real now.

Ready for Prime Time? The real question is not whether desktop videoconferencing is worthwhile, but whether it's worth investing in *today*. The cost of the basic equipment per seat (or PC) usually ranges from $2,000 to $6,000, which—although it sounds cheaper

HOW IT WORKS EVERYTHING YOU NEED FO

Personal videoconferencing combines two elements we're accustomed to transmitting over telephone lines—voice and data—with one element we're not—video. In a typical desktop videoconferencing setup, a PC is outfitted with a video camera, video digitizer board, microphone, ISDN adapter, earphone or external speakers, and software.

Video Camera: Using a camcorder-style lens, the video camera records full-motion images and sends them to the video digitizer board for processing.

Video Digitizer Board: The video digitizer board takes the camera's analog images and turns them into a stream of digital ones and zeros. This binary code can then be compressed using a software scheme or a compression algorithm built into the video board itself.

Microphone: The microphone captures your voice and sends it to the ISDN adapter, where your voice track is coupled with video signals and sent over the telephone line

ISDN Adapter: This adapter simultaneously sends and receives the voice, video, and data signals needed for a two-way visual conversation and information sharing session.

Earphone (or Speakers): The earphone or speakers let you hear what the other party is saying. Audio clarity depends on the quality and positioning of the earphone, speaker(s), or speakerphone.

Software: The software coordinates voice, video, and data signals while displaying the caller's picture (or yours) and the data you're sharing on the screen.

than group systems at first blush—quickly adds up when you start outfitting two or more offices to talk to each other. Likewise, the cost of installing and using the high-speed phone lines normally required for live videoconferencing can bend many budgets. As always, there are also hidden costs. You may need to add more memory and bigger monitors to many PCs in order to make videoconferencing truly practical, and there are inevitable training and support costs.

Moreover, the standards for personal videoconferencing are in a hazy stage. Makers of high-end group videoconferencing systems such as PictureTel and Compression Labs are lobbying to extend the prevailing standard, known as H.320, to desktop systems. But while H.320 may be the answer for video, it won't necessarily cover document and application sharing. The bottom line: Standards are emerging, but there's no guarantee that the system you invest in today will be fully compatible with competitors' systems, or future systems.

If the notion of seeing faces on your computer screen conjures up a strange mix of excitement and uncertainty, that's probably as it should be. The future is never so unsettling as when it's right around the corner. And the objects in this technology's mirror are definitely closer than they appear.

The Right Connection

With all the talk about the hardware you'll need for videoconferencing on PCs, it's easy to forget that the most important factor is what lies between the systems: the phone lines.

Desktop videoconferencing signals travel over two types of connections—LANs and telephone networks. Some systems give you a choice, but it's usually one or the other. Telephone lines are used for desktop videoconferencing more often because they can cover longer distances and are easier to set up. But phone line connections come in several flavors with varying degrees of efficiency and a range of costs.

Slow Standard Basic analog telephone lines (often called plain old telephone service, or POTS), coupled with high-speed modems can work well for whiteboard-style document conferencing, but they're not ideal for video service. Video signals require lots of transmission capacity, or bandwidth, even when compressed. Nonetheless, a few companies—notably ShareVision with its ShareVision PC3000 system (see "Low-Cost Videoconferencing," page 116)—do attempt to send video over regular phone lines. But the quality of the video tends to be fuzzy and herky-jerky, displaying a mere 5 to 10 frames per second, compared to the 30 frames per second of broadcast television.

Digital Dial-Up The twisted-pair copper wires used for standard telephone service were designed for low-bandwidth applications such as voice, data, and fax calls, which is why Integrated Services Digital Network (ISDN) phone lines have become the preferred carrier for desktop videoconferencing. It's easy to see why: Basic ISDN service provides roughly ten times the capacity (144Kbps vs. 14.4Kbps) of analog phone lines with a fast modem. That means smoother video with plenty of room for accompanying voice and data signals. Because ISDN is fully digital, a modem is not necessary, although an adapter board (usually supplied with the videoconferencing system) is required.

Alternatives The two principal alternatives to ISDN for high-speed telephone connections are Switched-56 service and leased lines. Switched-56 lines, like ISDN lines, are digital and are offered in some places where ISDN is not yet available. The service takes its name from the 56Kbps speed of the connection and the fact that it's a regular dial-up or circuit-switched line that leads to the phone company's central office. Switched-56 seems to be losing favor as ISDN coverage extends, however.

Leased lines are simply dedicated high-speed connections (usually between two points) that are leased from a long-distance carrier. The advantage is that you get a flat monthly rate rather than per-minute charges, which can mean lower bills if your company is a heavy user of videoconferencing. But for most situations, the high up-front costs of leased lines and the fact that you can connect with only a small universe of destinations—typically one other office—make leased lines impractical for many users.

Four Ways to Call

When You Can Get It, ISDN Is the Connection of Choice

	Costs	Pros	Cons
Standard Analog Phone Lines (Local carrier)	$13 to $20 per line a month, 10 to 20 cents per minute.	Low cost, available everywhere.	Narrow bandwidth means poor motion-video quality, requires high-speed modem.
ISDN (Local or Long-Distance Carrier)	$40 to $100 per line a month, 10 to 50 cents per minute.	Broad bandwidth for video, voice, and data; good to very good video quality; wide product support.	Higher installation and connection costs than analog lines, spotty availability.
Switched-56 (Local Carrier)	$50 to $300 per line a month, 10 to 15 cents per minute.	Ample bandwidth means good video quality, may be available where ISDN is not.	Not as widely supported by products as ISDN, costlier than analog, may be phased out.
Leased Lines (Long-Distance Carrier)	$400 or more for installation, $100 to $500 per line a month (flat rate).	Flat monthly rate aimed at heavy use, dedicated line.	Costly setup and stiff monthly fees, point-to-point connections only.

NOTE: COSTS ARE TYPICAL FOR TWO-WAY SERVICE. FLAT FEES FOR UNLIMITED MONTHLY CALLS ARE AVAILABLE WITH ISDN AND SWITCHED-56 SERVICES IN SOME AREAS.

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PC Digest RATINGS REPORT

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Face to Face

Desktop videoconferencing theory meets reality in the products themselves, and it's not always a pretty picture. But unlike just two or three years ago, these systems are, for the most part, a practical bunch. You *can* beam full-motion faces from here to there and back again.

Four of the six videoconferencing systems we tested (those from AT&T, Intel, Northern Telecom, and PictureTel) were designed for use with ISDN or Switched-56 digital phone lines. The other two (from EyeTel and IBM) are primarily for use with LANs with long-distance options.

All of the video systems we reviewed include some form of data or document conferencing. That usually means a shared whiteboard space or document, file transfer capabilities, and perhaps a text-based chat window. Only three of these, the systems from AT&T, Intel, and PictureTel, do true application sharing—that is, let users on both ends of the call make real-time changes to live application files as opposed to still-image snapshots of those files. The clear favorite of the bunch was Intel's ProShare Video System 200. Not only did it prove to be one of the easiest to get up and running, but its software was also the best-integrated of the bunch.

In evaluating the products in this roundup, ZD Labs installed and tested each one, rating for ease of use, subjective video and audio quality, and the range of software features.

We did not run quantitative performance tests on these videoconferencing systems for several reasons. Videoconferencing performance depends largely on the pipeline being used, and there's no meaningful way to compare varying network protocols with varying digital phone services. Most videoconferencing vendors claim throughput of 10 to 15 frames per second (fps), which is reasonably smooth but still falls short of the 30-fps rate to which television viewers are accustomed.

PC Best

Desktop Videoconferencing

ProShare Video System 200

PRICE: Selling for as little as $1,000 with ISDN service discounts, ProShare sets a new standard for price and performance in desktop videoconferencing.

VIDEO QUALITY: ProShare can't boast the best video quality of those we tested, but it has good video, the best Windows software, and the most "finished" feel of the group.

USABILITY: With its surprisingly simple hardware installation and polished, well-integrated software, ProShare is a solution, not a science project.

BOTTOM LINE: ProShare is a good value and a great way to get started with desktop videoconferencing. Intel can even help you arrange for ISDN phone service—no easy feat in some locations. (See "Total Video Solution," page 232.)

ProShare Video System 200 / Intel / (800) 538-3373 / $2,499 est. street price per user / *Reader Service No. 803*

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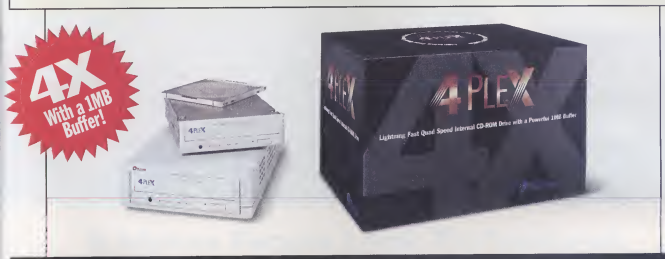

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Reaching **Out**

Few companies, if any, know more about telecommunications than AT&T, and the experience shows with its Vistium Personal Video System 1300 (formerly the Telemedia Personal Video System).

You can buy the Vistium 1300 system piecemeal, or get the complete package for $4,995 per user. The set includes a 16-bit board for audio, another for video compression and decompression, plus a monitor-top video camera, an AT&T 8510 speakerphone with a built-in ISDN adapter (or an ISDN adapter board and audio unit), and software.

Installing the hardware can be a little involved—you have to reconnect your monitor and VGA card to get them in the loop—but the process is explained clearly in the manual. Your reward for the complex hardware is above-average video quality. You can also share the images with a group, thanks to the Vistium 1300's support for the H.320 standard supported by most group videoconferencing systems. AT&T's Windows software also includes basic whiteboard features and application sharing.

The Vistium 1300 offers high performance, but it comes at a relatively high price. One alternative: AT&T's new Vistium 1200 is a simpler and less expensive setup ($2,700 per user) that, like Intel's ProShare, uses a software-based video compression scheme.

USABILITY: *Powerful software.* ****
PERFORMANCE: *Excellent video and conferencing.* ****
TECHNOLOGY: *Requires two add-in boards.* ****
VERDICT: *Solid but pricey.* ****

FILEBOX

Vistium Personal Video 1300

Pros: Good video quality.

Cons: Fairly expensive with complex hardware.

Suitability: Best for uncompromising AT&T customers.

$4,995 est street price per user
AT&T Global Information Solutions
(800) 843-3646
Reader Service No. 800

Network Video

USABILITY: *Tough installation.* **
PERFORMANCE: *High-quality motion video.* ***
TECHNOLOGY: *LAN and long-distance options.* ****
VERDICT: *Rough around the edges.* ***

FILEBOX

Communicator III

Pros: Supports LAN or telecom connections.

Cons: No application sharing, steep price.

Suitability: Network videoconferencing.

$4,995 est. street price per user
EyeTel Technologies
(800) 736-3236
Reader Service No. 801

Nobody ever said networking would be cheap or easy. The same seems to apply to LAN-based videoconferencing, and EyeTel's Communicator III is no exception.

Actually, the Communicator III's *software* is easy to set up and use. It's the hardware that's the problem. Installing the dual video capture and compression boards is a tricky process with confusing connections that the manual does little to illuminate. Our labs needed help from EyeTel before the system would operate. A video camera, microphone (or telephone handset), speakers, and software complete the Communicator III package. You supply your own network interface card.

Communicator III lists for a fairly stiff $4,995 per user. EyeTel's system is designed to run on Ethernet or Token Ring Novell LANs, although it can be extended to wide-area networks via ISDN, Switched-56, or T-1 lines.

Doing desktop videoconferencing over a LAN tends to produce substandard motion video compared to digital phone lines, but the Communicator III achieves respectable video quality. The system lets you share files, documents, and "video mail," but it won't let two users work with an application simultaneously.

With its LAN and WAN connectivity, Communicator III has potential, but it's rough around the edges.

Guide to the Ratings: *****Excellent* ****Good* ***Acceptable* **Poor* *Unacceptable*

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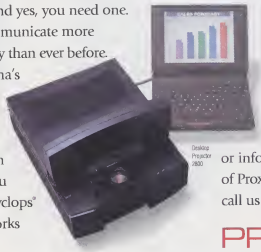

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Build Your Own

USABILITY: *Too many missing pieces.* **
PERFORMANCE: *Good whiteboard software; mediocre video.* ***
TECHNOLOGY: *Hardware not included.* **
VERDICT: *Not a simple solution.* **

What happens when you take good document conferencing software and throw video hardware at it? You get something like IBM's Person to Person, which does videoconferencing, but only with some initiative on your part.

Person to Person is basically a whiteboard program with file transfer and chat features for linking up with remote colleagues via LAN or ISDN connections. It also has a videoconferencing option. Well, sort of. IBM doesn't provide the necessary hardware in a tidy bundle with instructions—you have to pick it up on your own.

The hardware Person to Person supports for videoconferencing includes an IBM ActionMedia II video digitizing board and any number of video cameras (we used a pair from Video Labs). IBM says the software, video board, and camera should cost about $2,000 per user, but prices could vary widely. Not surprisingly, cabling these disparate pieces together and troubleshooting such a setup can be a real problem. Once together, Person to Person offers fair video quality over a LAN (which is how we tested it). Its data conferencing features are numerous, but do not include true application sharing.

Person to Person isn't so much a videoconferencing product as the potential basis for one. Expect to work at it.

FILEBOX

Person to Person

Pros: Solid document conferencing.

Cons: An assemblage of parts, not a solution.

Suitability: Best for companies that already own some of the pieces.

$280 est. street price for software only. $2,000 est street price per user with video board and camera
IBM
(800) 426-2255
Reader Service No. 802

Total Video Solution

USABILITY: *The easiest to install and use.* *****
PERFORMANCE: *Good video, top-notch conferencing.* ****
TECHNOLOGY: *Tight integration.* ****
VERDICT: *Best overall value.* *****

FILEBOX

ProShare Video System 200

Pros: Complete and reasonably priced.

Cons: No H.320 support.

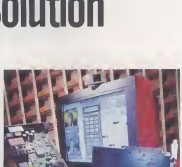
Suitability: Easy, one-stop solution.

$2,499 est street price per user
Intel
(800) 538-3373
Reader Service No. 803

The ProShare Video System 200 is a testament to the fact that the secret to creating a pleasing videoconferencing product lies not so much in the pieces, but in the satisfaction of putting them all together.

The ProShare system includes everything you need to get started, save for the ISDN connection and a PC. There's a monitor-top video camera, combination earpiece/microphone, video capture board, ISDN adapter board, and software. This ensemble lists for $2,499 per user, but the actual price is typically lower ($995 to $1,995) when you sign up for ISDN service at the same time. Intel has negotiated rates with ISDN providers in various regions.

Both the hardware and software installations are surprisingly straightforward. ProShare's video quality is not outstanding, but it's adequate. Intel uses its Indeo software video compression, which isn't quite as smooth as hardware-based solutions. But Indeo is also upgradable. ProShare does not support the H.320 videoconferencing standard now, but Intel has pledged to do so eventually.



The intuitive and well-integrated Windows software performs both video and document conferencing functions, and the new Premier version adds application sharing. No video conferencing product is perfect, but ProShare is the most complete package so far.

Guide to the Ratings: *****Excellent ****Good ***Acceptable **Poor *Unacceptable

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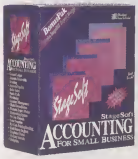

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Cross-Platform

Northern Telecom's Visit Video 2.0 system may get only fair grades for performance, but it gets high marks for interesting options—including the ability to mingle with Mac desktops.

Indeed, Visit Video's range is impressive. It comes in versions for Windows PCs with ISA, EISA, and Micro Channel buses, as well as a Macintosh version. It also comes in both color and black-and-white versions—another unusual touch. In either case, you get a video capture board and an ISDN adapter, plus the software. With a monochrome camera, the Visit Video system lists for $2,649 per user. In living color, it's $4,499.

Visit Video works with ISDN or Switched-56 service and can be used with standard analog or ISDN phone sets.

Visit Video's hardware installation routine is more troublesome than those of the other systems we tested. But once it's up and running, the system is stable and offers acceptable video quality. Visit Video does not support the H.320 group conferencing specification, but Northern Telecom says it will add support by mid-1995. Although it offers other features, such as voice mail access, Visit Video's software has whiteboard features, but doesn't support application sharing.

A solid if unspectacular video system, Visit Video's main claim to fame is its platform juggling.

USABILITY: *Installation hurdles.* **
PERFORMANCE: *Decent video.* ***
TECHNOLOGY: *Color and monochrome versions.* ***½
VERDICT: *Cross-platform solution, but no bargain.* ***

FILEBOX

Visit Video 2.0

Pros: Works with many types of PCs and Macs.

Cons: Lacks application sharing and H.320 support.

Suitability: Companies with cross-platform video needs.

$4,499 est. street price per user
Northern Telecom
(800) 667-8437
Reader Service No. 804

Pretty Pictures

USABILITY: *Easy to operate.* ****
PERFORMANCE: *The smoothest, brightest images.* *****
TECHNOLOGY: *Even the camera is top-notch.* *****
VERDICT: *Only downer is the price.* ****

FILEBOX

Live PCS 100

Pros: Great video quality, versatile camera.

Cons: Pricey, application sharing costs extra.

Suitability: Best video quality on the desktop.

$5,995 est. street price per user
PictureTel
(800) 716-6000
Reader Service No. 805

PictureTel, one of the biggest names in group videoconferencing, has taken its picture show to the desktop with impressive results. But the price—$5,995 per user, making it the costliest system we tested—may turn your smile upside down.

PictureTel's Live PCS 100 system includes a video digitizer board (that also replaces your VGA display board), a combination audio board and ISDN adapter, a speakerphone, a video camera, and software. The FlipCam camera can either sit atop your monitor or on a stand to double as a document camera.

In addition to its standard ISDN interface, Live PCS 100 can also work on Switched-56 and private leased lines with optional adapter boards.

The video quality is worth calling home about. It's as smooth as you'll find in desktop videoconferencing, with clarity and true colors to match. And the Live PCS 100 system supports the H.320 spec so you can talk to group videoconferencing systems as well. The standard document conferencing software includes basic whiteboard features only. An optional program, Live Share, adds application sharing for $149.

The Live PCS 100 system is an uncomplicated dilemma: What price video? It may be too high a price—for now. But it's easier to lower prices than raise video quality. Stay tuned.

Guide to the Ratings: ***** *Excellent* **** *Good* *** *Acceptable* ** *Poor* * *Unacceptable*

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- **Tax Reports**
- **Automatic Budgeting**
- **Computerized Check Writing**
- **Credit Cards**
- **IRAs/401(k)s**
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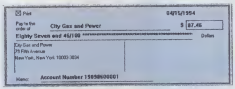
Power and ease-of-use are two qualities you don't generally find in personal finance software. Unless it's Kiplinger's Simply Money. The software that more than 1,000,000 people already rely on to make managing their money a simple task.

For instance, with Kiplinger's Simply Money you can pay bills electronically or print checks, either way your account is automatically balanced. Kiplinger's

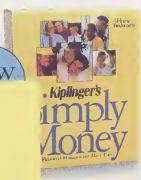


Choose to print checks, or make payments electronically.

Plus, since Kiplinger's Simply Money features Kiplinger's Financial Advisor, help is available to plan your future. And there's plenty of it. In fact, this new version of Kiplinger's Simply Money provides three times the advice when compared to the previous release.

What's more, Kiplinger's Simply Money gives you 68 reports and graphs to plan your retirement, monitor spending patterns and update your portfolio.

You can also calculate how much to set aside for life insurance and college. And determine annual yields from stock dividends. All with the click of a mouse.



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ree Service is available at an

Cross-Platform

Northern Telecom's Visit Video 2.0 system may get only fair grades for performance, but it gets high marks for interesting options—including the ability to mingle with Mac desktops.

Indeed, Visit Video's range is impressive. It comes in versions for Windows PCs with ISA, EISA, and Micro Channel buses, as well as a Macintosh version. It also comes in both color and black-and-white versions—another unusual touch. In either case, you get a video capture board and an ISDN adapter, plus the software. With a monochrome camera, the Visit Video system lists for $2,649 per user. In living color, it's $4,499.

Visit Video works with ISDN or Switched-56 service and can be used with standard analog or ISDN phone sets.

Visit Video's hardware installation routine is more troublesome than those of the other systems we tested. But once it's up and running, the system is stable and offers acceptable video quality. Visit Video does not support the H.320 group conferencing specification, but Northern Telecom says it will add support by mid-1995. Although it offers other features, such as voice mail access, Visit Video's software has whiteboard features, but doesn't support application sharing.

A solid if unspectacular video system, Visit Video's main claim to fame is its platform juggling.

USABILITY: *Installation hurdles.* **
PERFORMANCE: *Decent video.* ***
TECHNOLOGY: *Color and monochrome versions.* ***½
VERDICT: *Cross-platform solution, but no bargain.* ***

FILEBOX

Visit Video 2.0

Pros: Works with many types of PCs and Macs.

Cons: Lacks application sharing and H.320 support.

Suitability: Companies with cross-platform video needs.

$4,499 est. street price per user
Northern Telecom
(800) 667-8437
Reader Service No. 804

Pretty Pictures

PictureTel, one of the biggest names in group videoconferencing, has taken its picture show to the desktop with impres- [illegible] $5,995 [illegible] and true colors to match. And the Live PCS 100 [illegible]

USABILITY: *Easy to operate.* ****
PERFORMANCE: *The smoothest, brightest images.* *****
TECHNOLOGY: *Even the camera is top-notch.* *****
VERDICT: *Only downer is the price.* **

FILEBOX

Live PCS 100

Pros: Great video qu[illegible] versatile camera.

Cons: Pricey, applic[illegible] sharing costs extra.

Suitability: Best vid[illegible] quality on the deskt[illegible]

$5,995 est. street price pe[illegible]
PictureTel
(800) 716-6000
Reader Service No. 805

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Ironically, the most advanced personal finance software is also the easiest.

Kiplinger's Simply Money 2.0 Covers Simply Everything:

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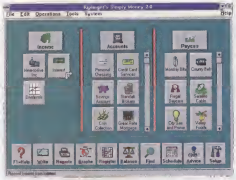


Intuitive menu icons make it quick and easy.

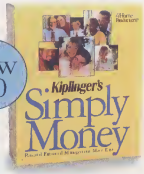
Yet it's also the most advanced personal finance software available. With enough power to keep track of your savings account, credit cards, mortgage, loans, investments, payroll and tax-free accounts, assets, liabilities, even your spare cash.

Plus, since Kiplinger's Simply Money features Kiplinger's Financial Advisor, help is available to plan your future. And there's plenty of it. In fact, this new version of Kiplinger's Simply Money provides three times the advice when compared to the previous release.

What's more, Kiplinger's Simply Money gives you 68 reports and graphs to plan your retirement, monitor spending patterns and update your portfolio.

You can also calculate how much to set aside for life insurance and college. And determine annual yields from stock dividends. All with the click of a mouse.

Easy yet advanced. It's why Kiplinger's Simply Money is the perfect personal finance software for everyone.



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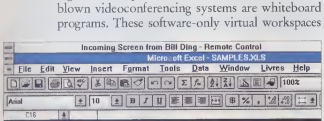
Circle 122 on reader service card.

Whiteboards: Document Sharing

Hold the Video

For businesses on a tight budget, the financial and technological risks of $3,000 videoconferencing systems can seem very daunting, indeed. That in mind, maybe you don't need the video, just data conferencing. Far less expensive and more accessible than full-blown videoconferencing systems are whiteboard programs. These software-only virtual workspaces allow far-flung users to exchange notes and comments on presentations, reports, and other PC documents across standard analog telephone or LAN lines.



Remote Control: Fujitsu's Desktop Conferencing 1.5 lets the initiator of a conferencing session take over another caller's system to edit applications or system files.

For less than $300, these whiteboard applications (which in some cases are actually a subset of a full-blown videoconferencing system's software) let you work interactively with one other person (point-to-point) or several people at one time (multipoint). Most whiteboard applications work by transferring files or images and displaying them in a shared whiteboard space, the digital equivalent of a chalkboard, complete with annotation and markup tools. Others, such as Intel's ProShare Premier and AT&T's Vistium, also let you share live documents and make changes to them in real time. Unlike videoconferencing packages, whiteboard applications don't currently include voice capabilities and are often used in tandem with a phone call on a separate line.

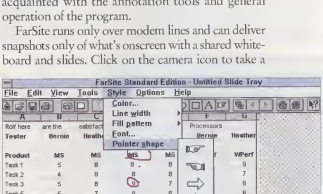
Of the eight whiteboard products we looked at, Intel's ProShare Premier, with its easy-to-use notebook interface and application-sharing features, was our hands-down favorite. For multipoint conferences, however, we preferred Future Labs' TalkShow 2.1, which allows for an unlimited number of participants (ProShare Premier is limited to point-to-point calls). While most of the products share common functions—such as the ability to transfer files, a screen capture utility, and document annotation tools—they differ in the way they let you share and edit data.

DeskTop Conferencing 1.5 Fujitsu's DeskTop Conferencing software takes a novel approach to application sharing. It works like a remote control product. The initiator of a call can actually take over another participant's system and work with a live application or even edit system files. In addition to application sharing, you can collaborate on captured images in the whiteboard and prepare slides in "trays" that intuitively look like folder files. While you can't use DeskTop Conferencing over a modem—it runs only on LANs and WANs—you can conference up to eight participants. Overall, this is a great package for a network administrator to use as a help desk tool.

DeskTop Conferencing 1.5 / Fujitsu Networks Industry / (800) 446-4736 / $245 est. street price for five users, $490 est. street price for ten users / *Reader Service No. 806*

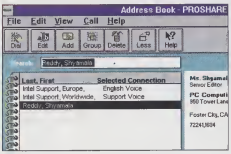
FarSite for Windows 1.0 Compared to the other whiteboard products we looked at, FarSite is a bit of a lightweight at application sharing and offers only point-to-point communication. On the other hand, it's one of the easiest to get up and running. Several games are included in the package to get you acquainted with the annotation tools and general operation of the program.

FarSite runs only over modem lines and can deliver snapshots only of what's onscreen with a shared whiteboard and slides. Click on the camera icon to take a

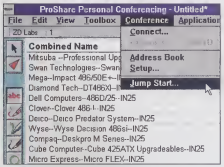


Annotate: It doesn't include application sharing, but DataBeam's FarSite whiteboard software stands out for its annotation tools, especially its customizable pointers.

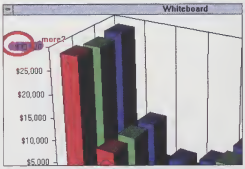
SIDE BY SIDE TWO WAYS TO **COLLABORATE**



Notebook: Our favorite whiteboard, Intel's ProShare Premier uses a familiar notebook metaphor for pasting text and images into a shared workspace.



Jump Start: A unique Jump Start feature sends a guest copy of ProShare Premier to remote users.



Markup: Want to highlight features on a chart? Just copy and paste the chart into TalkShow's whiteboard space for annotation.

Edit: In TalkShow 2.1, the host machine can load and make changes to a live object or document. The forthcoming TalkShow 3.0 will let both callers alter a live document.

screen capture of the desired view and you can paste or import the image into the whiteboard or a slide tray. One of our favorite FarSite features is its annotation tools; annotations can be moved around the screen and edited without disturbing the original underlying image because they're stored as a separate layer.

FarSite for Windows Version 1.0 / DataBeam / (800) 877-2325 / $179 est. street price per user / *Reader Service No. 807*

ProShare 1.6 Premier Edition Our favorite whiteboard product of the bunch, Intel's ProShare Premier is a breeze to install and run. The interface is styled after a tabbed paper notebook, and the address book makes dialing a call as easy as picking up the phone.

A feature we especially like is Jump Start, which sends a guest copy of ProShare to a remote user who isn't running the software. Once the participants have ProShare running, they can paste or import images, text, and screens into the notebook pages to share and annotate. Each page acts as a separate whiteboard, and the tabbed interface makes it simple to switch between pages. In addition to the shared work space, ProShare also gives you a private work space to jot down notes during a conference. ProShare Premier even lets you share live applications, and only one of the participants needs to have the application installed on a local hard drive.

ProShare 1.6 Premier Edition / Intel / (800) 538-3373 / $299 est. street price per user / *Reader Service No. 808*

TalkShow 2.1 One of the easiest whiteboards to learn was TalkShow. Simple features, such as bubble help and a very descriptive, visual tutorial with screen shots pointing out key features, will get you up and collaborating in no time.

The only thing TalkShow lacks is application sharing. Currently only the host machine can edit a conferenced document; application sharing will be implemented via OLE 2.0 in TalkShow 3.0, due out by the end of the year. Although we weren't able to test Version 3.0 in time for our review, the promising early beta version adds several new features, including object-based annotations that can be saved in a file separate from the original document, similar to the method used by DataBeam's FarSite for Windows. Even without application sharing, however,

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At Compaq, we always try to give you the notebook features you've asked for. Even if your requests do seem to stretch the laws of physics. Case in point: the Compaq LTE Elite.

To begin with, we actually found a way to get rid of that bulky AC adapter that you've always had to carry. We built the LTE Elite to have its own **built-in AC adapter**, so when you travel, all you need is a thin power cord.

At your request, we also designed it to be easily expanded. The LTE Elite gives you a choice of fast 486 processors (up to 75MHz) and a **removable hard disk**. It also has **PCMCIA** slots that let you use over 140 Compaq-tested cards. And almost every key component is **upgradeable:** the memory, the display and the processor itself.

We even designed the LTE Elite to make things easier in the office – with the SmartStation and MiniStation **expansion bases.** Both of these options feature built-in networking* and SCSI-2 capabilities for an instant desktop configuration– with ports for your full-sized monitor and keyboard. The SmartStation also adds expansion slots and bays, a spare battery charger and motorized docking.

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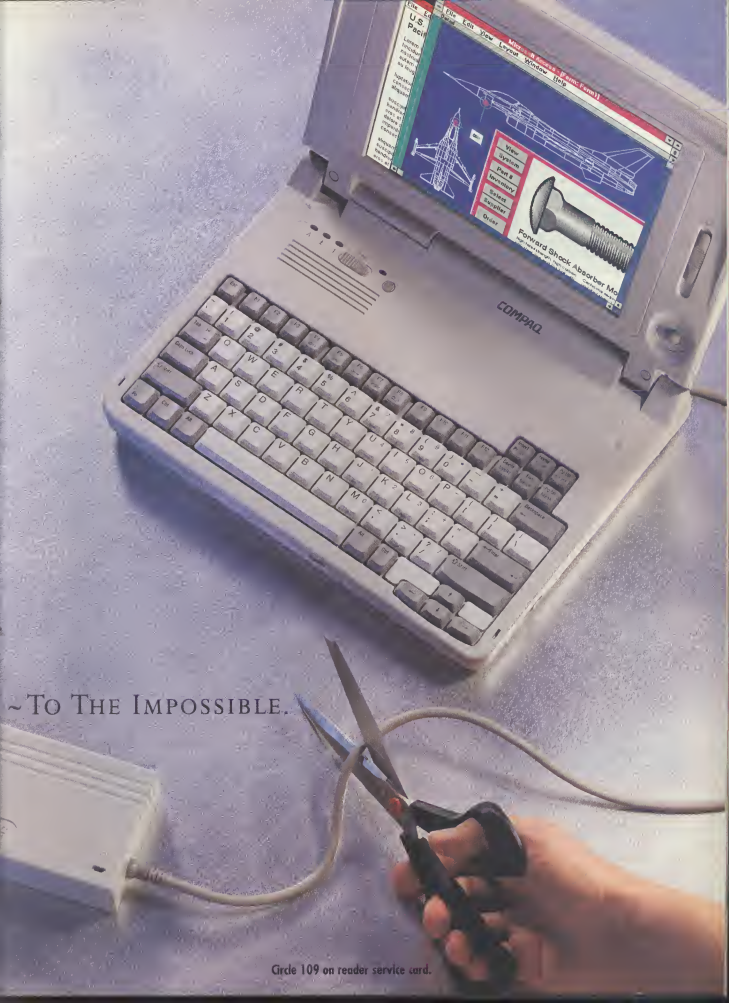


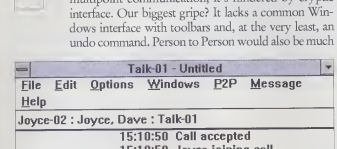
Circle 109 on reader service card.

Whiteboards: Document Sharing

the current version is strong with a wide array of annotation tools. The addition of OLE 2.0 will make TalkShow 3.0 a tough product to beat.

TalkShow 2.1 / Future Labs / (800) 933-8887, (415) 254-9000 / $199 est. street price per user / *Reader Service No. 809*

Person to Person 1.03 for Windows While Person to Person has the potential to be a great product for multipoint communication, it's hindered by cryptic interface. Our biggest gripe? It lacks a common Windows interface with toolbars and, at the very least, an undo command. Person to Person would also be much



Chat Mode: Person to Person's Talk utility lets callers "chat" about shared documents in a text window. Comments are stamped with a name, date, and time for later reference.

easier to use if all of the individual applets—Address Book, Chalkboard, Clipboard, File Transfer, Stills Capture, and Talk—were linked. You can switch between the applications in the "Windows" pull-down menu if they are all open, but the process is cumbersome.

Of Person to Person's individual applets, one of the better ones is Talk, which is also one of the best chat utilities of the eight applications we tested. Each entry is annotated with the participant's name and a time stamp. You can even copy session text into the clipboard. This is one area where Person to Person shines over ProShare, which has no chat feature at all.

Person to Person 1.03 for Windows / IBM / (800) 426-9402 / $280 est. street, one user; $1,875 est. street, ten users / *Reader Service No. 810*

Smart 2000 Conferencing Software 3.11 Smart may not be the right word to describe this product, due mainly to its confusing interface. Like Person to Person, it lacks common Windows functionality for program navigation. There are no menu bars, no online help, not even an undo command. We almost couldn't find one of its best features—application sharing in real time—which is done via the Advanced Interface setting.

With Smart 2000 running, both machines can remotely share an application, provided they each have the program loaded. You can also launch another participant's application, load the document, and have anyone in the conference edit or annotate it. If you can navigate Smart 2000 without online help, you'll discover that it's feature-rich, if a little hard to learn.

Smart 2000 Conferencing Software 3.11 / Smart Technologies / (403) 245-0333 / $297.50 est street price per user / *Reader Service No. 811*

Vistium Share Software Professional 1.0 One of the virtues of the way Vistium does point-to-point application sharing is that only one person needs the application on his or her system in order to share it. In other words, after the host of the application launches the program, both participants in the call can have control of the keyboard and mouse to collaborate on a document. It's as if the two are working on one system with two monitors, mice, and keyboards, making changes in real time to the system of the host.

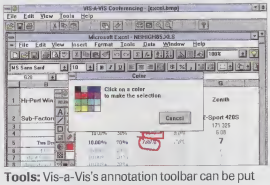
One serious drawback to AT&T's setup, however, is the interface. Rather than a standard Windows toolbar, it uses a small toolbar broken into four sections: confer, directory, share, and transfer. A hint line at the bottom of the screen informs users of the tool functions, but it's not a welcoming interface for conferencing novices.

Vistium Share Software Professional 1.0 / AT&T Global Information Solutions / (800) 637-2600, (513) 445-5000 / $199 est street price per user / *Reader Service No. 812*

Vis-a-Vis for Windows Vis-a-Vis can be used for more than two participants, but it requires a data bridge to conference up to 32 people. It offers file sharing in a fashion similar to FarSite, but can be used over a LAN as well as a modem. While there's no OLE support to share live applications, you can use its screen capture utility to grab a screen of an application or image. You can then transfer the screen or any file into the clipboard where it can be annotated or used to create slides for a presentation. We found this an excellent product for sending images with its TWAIN scanner and digital camera support, but its lack of OLE makes document conferencing cumbersome.

Vis-a-Vis for Windows / Vis-a-Vis / (800) 263-9673 / $185 est. street price per user / *Reader Service No. 813*

LIESL LA GRANGE



Tools: Vis-a-Vis's annotation toolbar can be put anywhere on the whiteboard, making it easy to select the color or thickness of the annotation tool.

"Hallelujah!"

"QuickBooks is simple to understand and use."
Cynthia Krol

"Love it!"

"Reports can be laid out in any conceivable way." *Susan Yeagely Sullivan*

"Easy!"

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"A butt-kicking program! About time! Amen!"
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***Also available: Version 2.0 for DOS. Does not include new WIN 3.0 features.**

Windows system requirements 386 or higher IBM-compatible PC with 4 MB RAM, Windows 3.1 or higher, 10 MB free space on your hard disk and a VGA or better monitor. Works with any printer supported by Windows. QuickBooks is a registered trademark of Intuit Inc.

Time to Go **Video?**

With all of its gee-whiz-inspiring technology, desktop videoconferencing makes a great first impression. Whether it will make a lasting impression on your productivity is another matter. Still, few other technologies have the potential to influence both how and *where* we work. Deciding whether to buy into this nascent field now prompts key questions. Some answers:

Do I need a full-fledged videoconferencing system or shared whiteboard software? Video is very important if the focus of your sessions is on people or objects that people need to see—as it is in most group videoconferencing systems. If the focus is on shared data, with live pictures playing an adjunct role, the clarity and smoothness of the video is not as crucial. In these situations, $300 videoless document conferencing and whiteboard products such as Intel's ProShare Premier are well worth a look.

Does a LAN- or telephone-based system make more sense? At this stage, phone-based products make the most sense for businesses. LAN systems tend to be more troublesome to set up, and typically offer inferior video quality. Desktop videoconferencing is also most valuable (and financially justifiable) as a long-distance link, not a departmental tool.

What type of document conferencing is essential? The ability to share an electronic whiteboard (notebook, document space, etc.) is considered a minimum requirement in desktop videoconferencing systems, as is file transfer. Application sharing, or two people using one program at the same time, is fast becoming an essential part of the toolkit as well.

What about standards? The H.320 standard for working with high-end group videoconferencing systems is entrenched. Most desktop vendors support it now or say they will soon. There's no similarly supported standard for sharing documents or applications, however, and hammering out such standards could be difficult because there is little agreement on whether to extend H.320 or come up with something new.

Chris O'Malley is a journalist who writes for Popular Science *and several leading computer magazines.*

DECISION MAKER — CHOOSE THE BEST DESKTOP **VIDEOCONFERENCING** SOLUTION

1 Choose the factor most important to you.	2 Choose the next most important factor.	3 What else is important?	4 For your needs, the best product to buy is . . .
Price	Video Quality	Usability	Intel ProShare 200
		Data Sharing	Intel ProShare 200
	Usability	Video Quality	Intel ProShare 200
		Data Sharing	Intel ProShare 200
Video Quality	Price	Usability	Intel ProShare 200
		Data Sharing	AT&T Vistium 1300
	Usability	Price	AT&T Vistium 1300
		Data Sharing	PictureTel Live
Usability	Video Quality	Price	Intel ProShare 200
		Data Sharing	Intel ProShare 200
	Price	Video Quality	Intel ProShare 200
		Data Sharing	Intel ProShare 200

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Circle 226 on reader service card.

Makeup! Get Me Makeup!

Fade in: It's sunset in downtown Los Angeles. On the rooftop of the tallest building, I'm moonwalking toward the building's edge. Dressed as Louis XIV, the Sun King, I'm wearing a parachute and carrying a booted, multimedia notebook. As the sun sets, I jump off the building into the dusk. My photoluminescent chute opens and I glide to the ground like a giant jellyfish with a glowing bonnet. I land in the middle of a 72-piece orchestra, where Liza Minnelli is singing the theme song from *2001*, "Thus Spake Zarathustra."

What's going on? Did someone put the wrong kind of mushroom on my burger? No, relax. It's the opening sequence for my new desktop videoconference. Sound far-fetched? It's timid in comparison with what's to come.

ACTING *lessons, orchestras, big* **STARS**, *costumes, makeup,* **MUSIC** . . . *You can almost* **HEAR** *the digital roar and* **SMELL** *the greasepaint.*

Oh, it all began innocently. I hired a media consultant. . . .

The consultant arrived precisely at 10:30. "Hello, Mr. Fleischer," he said. "I'm Dwayne Sherman from Media Image. I'm going to help improve your personal videoconference techniques, and that's going to help make you more money."

"Great!" I think to myself, "Who doesn't need to make more money?"

He goes to my desk, opens his briefcase, and pulls out lots of charts with more bullets than The Lone Ranger.

"We've got more years than anyone at producing large group videoconferences. And we know from that experience that you're not just talking into a camera, you're performing. Same thing applies to this personal videoconferencing. I'm talking show business. So, step one is acting lessons. We use many styles to increase your on-camera skills. On Monday, you'll do Shakespeare. On Tuesday, commedia dell'arte. On Wednesday, Kabuki—a great discipline. Thursday, Broadway musicals, very big in the coming year, and on Fridays, Yiddish theater, which is so good for timing.

"Of course you'll need makeup."

"Makeup? Why do I need makeup?"

"Dan Rather wears makeup. All TV people do."

"Don't you have anything digital?"

Dwayne looked around to make sure no one was in the room, then whispered, "There is a real-time digital makeup program, but it's Version 1.0 and it's buggy as hell. Last week in Cleveland, the whole thing crashed in the middle of a conference."

"What happened?"

"A CEO morphed into Quasimodo with a voice like Godzilla. We're not recommending this package.

"We also have a full costume service available," he said, resuming his normal tone of voice.

"What's wrong with my suit?"

"Nothing, except everybody wears one. Do you know how boring television and movies would be if all people wore suits?"

"Well, there'd be no period films."

"Exactly. Our biggest rentals lately have been pirates, Vikings, astronauts, and ice skaters, in that order."

"Pirate sounds good."

"We also have access to the agents of all the top Hollywood stars. You'll find that if you have a star in your videoconference, it increases your chance of getting it on VC-TV, Video Conference Television."

"VC-TV. Big stars. Costumes. Makeup. Musicals . . ." I began to drift. I'm on the set of my big-budget videoconference. I'm wearing a pirate costume. Arnold Schwarzenegger, Nine Inch Nails, and Pavarotti are singing Gershwin on the deck of the USS *Missouri*. I'm about to rescue Sharon Stone from a sea monster (digital effect) when I look in the mirror. My hair is a mess and my nose is shiny.

"Makeup! Can someone please fix my makeup? Come on. I've got a videoconference to shoot."

CHARLES FLEISCHER *is a comedian whose first desktop videoconference bombed in Peoria.*

How to make the InternetWork

It is not easy, this Internet thing.

The only way into it is with arcane, archaic software packages that give you limited access to the Net, and unlimited opportunity to get lost, crash, and waste hours downloading one document at a time.

Introducing InternetWorks LITE: the first truly simple, yet vastly powerful, interface to the Internet. It's fast, it's foolproof, it's free (well, actually $9.95 for postage and handling) — and it gives you features that make Mosaic look Jurassic.

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InternetWorks LITE is the most elegant front end ever created for the Internet. Except for the InternetWorks fully featured version, which gives you...

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800-453-SURF for your free copy of InternetWorks LITE. Or, current Internet users can download it on-line: ftp://ftp.booklink.com/lite.

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Circle 113 on reader service card.

Six new wa
into mul

1.

The logical way. The Sound Blaster™ Discovery CD™ 16 kit includes everything you need to explore the expanding universe of multimedia. And now it's more affordable than ever. You get a Sound Blaster 16-bit sound card, double-speed CD-ROM, stereo speakers, microphone and 15 cool software titles.
SRP, $349.95

2.

The intelligent way. Sound Blaster Digital Schoolhouse™ is the antidote to mindless video games. It turns an ordinary PC into an awesome educational system that even makes math and spelling cool. Instead of chasing a brainless blip around the screen, kids travel through time to learn about their favorite dinosaurs. Or visit the rainforest or ancient China. Of course, since it's a Sound Blaster, you travel in style. You get a Sound Blaster 16-bit sound card, double-speed CD-ROM, plus 20 of the hottest educational software titles and more.
SRP, $399.95

3.

The take-no-prisoners way. The most powerful forces of the gaming universe have come together. And now they're coming to get you. Game Blaster CD™ 16 brings together a Sound Blaster 16-bit sound card, double-speed CD-ROM, plus games to die for, like Rebel Assault and SIM City 2000. So be careful out there.
SRP, $549.95

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ys to blast
timedia.

4.

The ultimate way. Educational software, games, cool creative software. The Sound Blaster Edutainment CD™ 16 gives you the whole enchilada. You get a Sound Blaster 16-bit sound card and double-speed CD-ROM. Not to mention over 40 of the planet's most captivating software titles and lots more.
SRP, $599.95

5.

The inexpensive way. The Creative OmniCD™ 2x is the leanest, meanest CD-ROM upgrade in the cosmos. The 2x CD-ROM makes all your software more exhilarating. And it makes you more productive. With 6 cool software titles, you can dive into multimedia right out of the box.
SRP, $249.95

6.

The bogus way. Sure, there are other ways to get into multimedia. But why take a chance? Sound Blaster sound cards and kits are the multimedia sound standard. All the hottest games and software are made to be played on Sound Blaster. Other systems don't seem as real or as cool. And neither do the people who play them.

Sound BLASTER

Of course, all these kits give you 100% Sound Blaster compatibility. And all the technical help you need is just a phone call away. So installation is a no-brainer. Want more information on the mind-expanding world of multimedia? Just visit your nearest Creative Labs dealer. Or call 1-800-998-5227 Ext. 102.

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Sound Blaster Discovery CD, Sound Blaster Edutainment CD, Game Blaster CD, Sound Blaster Digital Schoolhouse and the Sound Blaster holders. U.S. inquiries: 1-800-998-5227. International inquiries: Creative Technology Ltd., Singapore, TEL 65-773-0233 FAX 65-773-0353

Circle 185 on reader service card.

Human Touches

SYNOPSIS

IT'S IN THE DETAILS: *The new PC Computing Usability Spec Watch.* **252**

DESKTOP SYSTEMS: *Look here before spending the cash for the cache.* **252**

PORTABLE PCS: *How to pick one worth its weight.* **253**

MODEMS: *Study the fax.* **253**

CD-ROM DRIVES: *Transfer rates make your head spin?* **254**

LASER PRINTERS: *Do you have a need for speed?* **254**

YEAR IN THE LABS: *Our top picks in usability-rich hardware and software.* **256**

The stories are legendary: a row of rented airplane seats crammed with befuddled testers fiddling with pointing devices; coffee (yes, with cream and sugar) poured sadistically over notebook keyboards; pie-chart–drawing races. It's no wonder that visitors to *PC Computing*'s offices inevitably ask to see the Usability Labs. Everyone wants a peek. Behind such antics, of course, lie grueling hours of tedious labor—the fruits of which reveal more about a product's true value, design, functionality, and limitations than performance benchmarks alone could ever show. Usability test results provide the most direct link you'll find between technology purchase and payoff. They dictate how to spend your PC dollars more wisely than any other measure available today.

We also discovered that testing for usability is a subtle business. Rarely did we arrive at a specific task, event, or moment that deemed a product usable. Instead, it was typically a consistent pattern of clearly identifiable usability enhancements that let users work longer, faster, and more efficiently than the pack of competing products. The tricky part was understanding how and why.

It's easy enough to tell you which machine in a roundup of Pentium PCs is fastest. Unfortunately, that information is only valuable until the next Pentium machine hits the market—or until the next round of upgrades hits the PCs we tested.

Identifying products with enduring value has been our goal right from the start. In "Year in the Labs," page 256, Senior Technical Editor/Lab Director Adam Meyerson showcases results from our Usability testing, along with the products our editors found to be the most usable. With that in mind, we also inaugurate our new Spec Watch section (see page 289), which lets you build a personal checklist of a product's technical specifications based on your particular needs. That, after all, is what usability is all about.

BY MARTY JEROME

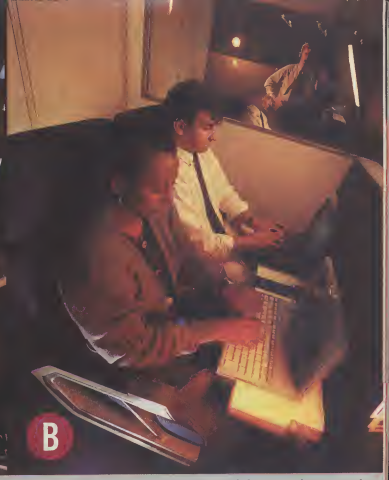
A ALL KNOWING: Every action taken by the user is diligently noted and logged on a notebook.

B COFFEE, TEA, OR NOTEBOOK: Just how usable is a notebook on a long flight in one of those cramped airline seats? We find out.

C DATA OVERLOAD: Hours of notes and megabytes of data are collected for each product tested.

D EYES AND EARS: From the Usability Labs' control room, each tester's keyboard, mouse, facial expressions, and comments are monitored.

PHOTOGRAPHS BY MARK RICHARDS



Law of the Usability Labs: When it comes down to it, the most accessible products win.

Decision Maker: Desktop Systems, Portable PCs, Modems

It's in the Details

Even if you're reasonably well versed in the performance differences between, say, a 100MHz DX4 chip and a 90MHz Pentium chip, do you know which type of video accelerator best matches each chip's capabilities? Or the size and type of level-2 cache that will keep your trusty system humming along at full speed?

Few of us can keep up with all the nitty-gritty specs of any technology—they change too rapidly. *PC Computing's* monthly Spec Watch section (see highlights here, plus more on page 289) provides a checklist of essentials for systems and peripherals to help you get the most for your dollar.

And because your business and computing needs vary widely, we've redesigned Spec Watch to reflect that range of needs. Beginning this month, the section includes customized Decision Makers that help you make your own spec checklist based on your particular business applications. Besides technical guidelines, Spec Watch now includes key usability features that will ensure your satisfaction with the product.

DESKTOP SYSTEMS

WHETHER A 486 OR PENTIUM, **STOCK WITH RAM**

USABILITY

1. **BIOS:** Flash BIOS for easy upgrade.
2. **Case:** Tool-free cover removal.
3. **CPU:** ZIF CPU socket.
4. **RAM:** Easy access to SIMMs.
5. **Hard Drive:** Enhanced IDE.

FEATURES

1. **CPU:** 256K cache, upgradable to Pentium.
2. **RAM:** Expandable to 32MB.
3. **Monitor:** 17-inch.
4. **Monitor:** 21-inch.
5. **Video:** 64-bit VL-bus or PCI accelerator with 2MB of RAM.
6. **Video:** 64-bit VL-bus or PCI accelerator with 4MB of RAM.
7. **Hard Drive:** Enhanced IDE or SCSI-2.
8. **Sound/CD:** 16-bit sound card (Sound Blaster–compatible).
9. **CD-ROM:** Dual-speed drive.
10. **Slots:** Three PCI or VL slots.
11. **Ports:** Two serial, one parallel, keyboard, mouse.

DECISION MAKER

1 What's most important?	2 Primary activity?	3 This is a minimum configuration:	4 Look for these features...
Text & Numbers	Word Processing & E-mail	66MHz 486DX, 8MB of RAM, 340MB Hard Disk, 15-inch Monitor	**Usability:** 1, 2, 3, 4, 5 **Features:** 3, 5, 7, 8, 9, 10, 11
	Spreadsheets & Databases	100MHz 486DX4 or Pentium, 16MB of RAM, 500MB Hard Disk	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 2, 4, 6, 7, 8, 9, 10, 11
Graphics, Design & Multimedia	Presentations, Drawing & Flowcharting	66MHz 486DX2, 16MB of RAM, 500MB Hard Disk, 17-inch Monitor	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 2, 4, 6, 7, 8, 10, 11
	CAD, 3-D Rendering & Image Editing	100MHz 486DX4 or Pentium, 16MB of RAM, 1GB Hard Disk, 21-inch Monitor	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 2, 6, 7, 8, 10, 11

PORTABLE PCs COLOR RULES AT **LESS THAN SEVEN POUNDS**

USABILITY

1. **Display:** 9.5-inch active-matrix or dual-scan passive-matrix color display.
2. **Display:** 7.5-inch or larger dual-scan passive- or active-matrix color display.
3. **Weight:** Total traveling weight less than 12 pounds.
4. **Weight:** Total traveling weight less than 7 pounds.
5. **Key Spacing:** Cursor controls and function keys at least ¾ the size of QWERTY keys.
6. **Batteries:** Swappable without powering down.
7. **Battery Life:** At least 4 hours with power management set at half mast.

FEATURES

1. **RAM:** Expandable to at least 20MB.
2. **Slots:** Two Type II (or one Type III) PC Card.
3. **Slots:** At least one Type II PC Card.
4. **Ports:** Parallel, serial, VGA, PS/2, mouse, and keyboard.
5. **Sound:** Integrated sound chip.

DECISION MAKER

1 What's most important?	2 Primary activity?	3 This is a minimum configuration:	4 Look for these features...
Desktop Use	Multimedia, Application Development, Graphics	75MHz 0X4, 16MB of RAM, 500MB Hard Drive	Usability: 1, 3, 5, 6, 7 Features: 1, 2, 4, 5
	Word Processing and/or Spreadsheets	50MHz 486DX2, 8MB of RAM, 250MB Hard Drive	Usability: 1, 3, 5, 6, 7 Features: 1, 2, 4
Traveling Machine	Presentations Communications	50MHz 486DX2, 8MB of RAM, 170MB Hard Drive	Usability: 1, 3, 5, 6, 7 Features: 1, 2, 4, 5
	Word Processing, Spreadsheets, Databases	33MHz 486, 8MB of RAM, 120MB Hard Drive	Usability: 2, 4, 5, 6, 7 Features: 3, 4

MODEMS FOCUS ON 14.4KBPS AND **FAX** FEATURES

USABILITY

1. **Display:** LCD Display on external models.
2. **Compatibility:** Fallback transmission rates.
3. **Compatibility:** DOS and Windows communication software supports Zmodem, Ymodem, Xmodem, Kermit, CompuServe B Plus, and CompuServe Quick B protocols.
4. **Software:** Fax supports OCR.
5. **Installation:** Interrupts on internal faxes set through software.
6. **Port Selection:** COM1 through COM4.

FEATURES

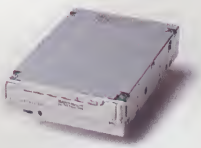
1. **Compatibility:** V.32 bis, V.42 bis, CCITT group 3 Class 1, Class 2, CAS, Hayes command set.
2. **Audio:** Integrated voice, data, and fax.
3. **DSP:** Onboard digital signal processor.
4. **Speed:** 16550 UART.

DECISION MAKER

1 Time spent online?	2 Primary activity?	3 This is a minimum configuration:	4 Look for these features...
Six Hours or More per Week	PC-to-Network File Transfer	14.4Kbps with Fax, V.Fast Class (V.34)	Usability: 1, 2, 3, 4, 5, 6 Features: 1, 2, 3
	Read Text Online, E-mail	9,600 bps with Fax	Usability: 1, 2, 3, 4, 5, 6 Features: 3
Fewer than Six Hours per Week	Download Files	14.4Kbps with Fax	Usability: 1, 3, 4, 5, 6 Features: 3
	Read Text Online, E-mail	9,600 bps (Fax optional)	Usability: 1, 2, 4, 5 (optional), 5, 6 Features: 3

CD-ROM DRIVES

DEMAND DUAL OR QUAD SPEED AND **MPC 2** COMPATIBILITY



USABILITY

1. **Door Cover:** Double doors on drive to deter dust.
2. **Control:** Output jack and manual volume control.
3. **Installation:** IRQs set through software, not jumpers or dip switches.

FEATURES

1. **Performance:** 200ms access time or faster.
2. **Interface:** SCSI-2.
3. **Buffer:** 64K or larger.
4. **Buffer:** 256K or larger.
5. **Compatibility:** MPC 2.
6. **Compatibility:** High Sierra and ISO-9660.
7. **Compatibility:** CD-Audio and Kodak Photo CD.
8. **Applications:** Bundled CDs.

DECISION MAKER

1 What's most important?	2 On what range of CDs?	3 This is a minimum configuration:	4 Look for these features...
Multimedia	5 or More Commercial Titles	Quad-speed Drive with 150Kbps to 600Kbps Transfer Rate	**Usability:** 1, 2, 3 **Features:** 1, 2, 4, 5, 6, 7, 8
	Proprietary, or Fewer than 5 Commercial Titles	Dual-speed Drive with 150Kbps to 300Kbps Transfer Rate	**Usability:** 1, 2, 3 **Features:** 1, 2, 4, 5, 6, 7, 8
Text & Static Images	5 or More Commercial Titles	Dual-speed Drive with 150Kbps to 300Kbps Transfer Rate	**Usability:** 1, 2, 3 **Features:** 1, 2, 4, 5, 6, 7, 8
	Proprietary, or Fewer than 5 Commercial Titles	Dual-speed drive with 150Kbps to 300Kbps transfer rate	**Usability:** 1, 2, 3 **Features:** 1, 2, 3, 5, 6, 7

LASER PRINTERS

LOOK FOR 4 TO 8 PAGES PER MINUTE AND **PCL 5**

USABILITY

1. **Emulation Switching:** Automatic, all ports active.
2. **Paper Tray:** 200-sheet or larger with envelope feed.
3. **Cartridges:** One or more HP-compatible cartridge slots.
4. **Footprint:** 260 square inches or less.
5. **RAM:** User upgradable memory and interface.
6. **Display:** LED panel or software utility for paper jams, errors, and status.
7. **Energy Use:** Automatic sleep mode or EPA Energy Star compliance.

FEATURES

1. **Page Description:** PCL 5 emulation.
2. **CPU:** RISC.
3. **RAM:** 2MB.
4. **RAM:** 4MB or more.
5. **Fonts:** 35 or more resident (at least 10 TrueType).
6. **Fonts:** 45 or more resident (at least 10 TrueType).
7. **Interface:** Bidirectional parallel interface.

DECISION MAKER

1 What's most important?	2 How many pages per day?	3 This is a minimum configuration	4 Look for these features ...
Text & Simple Business Graphics	More than 20	8 ppm, PCL 5, 300 dpi or Higher	**Usability:** 3, 4, 5, 6, 7 **Features:** 2, 3, 5, 7
	20 or Fewer	4 ppm to 6 ppm, PCL 5, 300 dpi or Higher	**Usability:** 2, 3, 4, 5, 6, 7 **Features:** 2, 3, 5, 7
Graphics-Laden Documents	More than 20	8 ppm, PostScript, 600 dpi	**Usability:** 1, 2, 3, 4, 5, 6, 7 **Features:** 1, 2, 3, 6, 7
	20 or Fewer	4 ppm to 6 ppm, PostScript, 600 dpi	**Usability:** 1, 2, 3, 4, 5, 6, 7 **Features:** 1, 2, 4, 6, 7

Do You Make These Six Common Mistakes On Your Taxes?

Six common mistakes can cause you big headaches on your taxes. An oversight here, an omission there. From unnecessary tax payments to full blown IRS audits—you can end up paying too much … or worse. But now, using TurboTax® or MacInTax®, you can avoid these simple but costly mistakes:

1 The Arithmetic Error

Today, even the simplest forms contain complex calculations. And with all the late-night scrambling, an innocent mistake could cost you plenty.

2 The Transcription Error

With all those numbers being juggled from schedule to schedule, it's no wonder the figures are so often transcribed incorrectly or entered on the wrong line.

3 The Omitted Form

Even "ordinary" returns require anywhere from six to a dozen forms to complete. It's easy to miss one or end up rushing all over town to find the one you need.

4 The Misinterpreted Instruction

At best, IRS instructions can be tough to understand. At worst they can be mind-boggling. What you need are clear directions in plain English.

5 The Overlooked Deduction

You'd have to be a professional tax preparer to know all the deductions you're entitled to. If you miss just one, it could cost you hundreds of dollars.

6 The Exceeded Guideline

The fastest way to trigger an IRS audit is to exceed the "normal" range on one of your deductions. You need to know what the IRS looks for on a line-by-line basis.

When you do your taxes with TurboTax, mistakes like these are virtually impossible. And filing your taxes couldn't be easier.

Now With TAX ADVICE

America's #1 Tax Software

The fastest, easiest way to do your taxes right. With a new Windows interface and enhanced capabilities for 1994, America's #1-selling tax software now makes preparing your income taxes easier than ever. Just gather your records and receipts, sit down at your computer and let TurboTax's award-winning EasyStep® tax preparation system guide you through every step of the way. Then print out your forms, sign them and drop them in the mail. It's that easy!

New "smart features" save time and ensure accuracy. Our TaxAdvisor™ points out overlooked deductions and mistakes on the fly—while you're entering your data into our Windows and Macintosh software—to improve the accuracy of your return. And the SmartAudit™ feature hunts down errors, omissions and likely audit items … and takes you directly to each item and tells you what to change and how. All in a fraction of the time you'd spend checking and revising your return manually.

Get more out of Quicken® with TurboTax. Our TaxLink innovation lets you work with TurboTax and Quicken—America's #1 personal finance software—as if they were a single program. Zoom in on tax-related Quicken transactions from within TurboTax—item by item—and reassign tax categories to maximize your tax savings. Then jump back to TurboTax and see the recalculated results. (Windows version only.)

TurboTax Quicken

Take our powerful CD-ROM for a spin. TurboTax on CD-ROM offers concise, full-motion video and audio assistance, plus over 60 IRS publications and expert tax advice from Marshall Loeb, former managing editor of Fortune magazine and tax attorney, Mary Sprouse, former IRS Audit Group manager, and author of the The Money Income Tax Handbook.

PC WORLD 1993 Best Buy

More returns filed and more awards won than any other tax software. Over 40 million returns have been filed using TurboTax, making it the nation's most trusted tax preparation program. So order today. And see for yourself why the new TurboTax is easily the best tax software ever!

Includes 2 Free Bonus Gifts!

Tetris. Rotate and flip moving pieces as they fall from the top of the screen. Fit the pieces precisely with others to form a complete row. The quicker you are, the higher your score!

Money Tax Strategies Book. Over 100 pages of money-saving tax strategies, from renowned tax authority Mary L. Sprouse and the experts at *Money* magazine.

☐ Yes, I'll try TurboTax FREE!

intuit

Rush me my FREE gifts and FREE TRIAL copy of TurboTax as soon as they're available (usually late October). If I'm not 100% satisfied, I'll return TurboTax within 30 days and owe nothing. If I decide to keep it, my credit card won't be charged until after my 30-day Free Trial. Either way, my FREE gifts are mine to keep, whatever I decide.

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I understand that there is an additional $7.00 shipping per order.

Card # _____ Exp. Date _____

Signature _____

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☐ 5-1/4" disks ☐ Low Density

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☐ TurboTax for Windows™ $39.95
☐ TurboTax for Windows - CD ROM $39.95
☐ MacInTax (for Macintosh®) $39.95

Mail your order to: Intuit, 2650 E. Elvira Rd., #100, Tucson, AZ 85706-7180. Or Call NOW:

800-964-1040 ext. 42429

TurboTax requires IBM PC XT, AT, PS/1, PS/2 or compatible, DOS 3.0 or higher, 640K RAM, hard drive. TurboTax for Windows requires Windows 3.1 or higher, 4 MB RAM, hard drive. CD ROM minimum requirements are Windows 3.1 or higher, 8 MB RAM, hard drive, CD ROM drive, VGA video card. MacInTax requires Macintosh Plus or higher, 256 color capable Macintosh, 2 megabytes of memory, hard drive, 3.5" floppy drive. Other trademarks are the property of their respective owners. ©Copyright of AZ, HR, QA, CT, FL, IL, SAB, MA, MD, MN, PA, TX, UT, WI, MA phone and MacInTax EasyStep and Quicken are registered trademarks of Intuit. Other trademarks are the property of their respective owners. ©Copyright of AZ, HR, QA, CT, FL, IL, SAB, MA, MD, MN, PA, TX, UT, WI, MA phone and MacInTax EasyStep and Quicken are registered trademarks of Intuit. Allow 2-3 weeks for shipping and handling. Offer valid only in the U.S. Allow 4-6 weeks for delivery. Offer expires 12/31/94. Prices and specifications subject to change without notice. Free shipping per order. For email questionnaire, attach a copy of sales receipt and enclose $7.00 U.S. for shipping and handling. (Check or money order payable to Intuit.) Send to Intuit Headquarters, Dept. 42 Please send 2 FREE Bonuses AZ 85706-7180. Fax: 415 Jones St. Dallas 76117. Customer is responsible for return shipping charges.

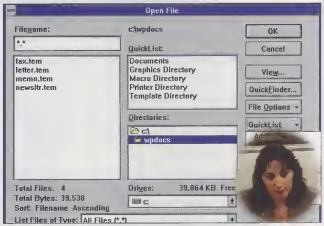
Test Report: Word 6.0, WordPerfect 6.0a, Dashboard 2.0

Year in the Labs

Ever tried to screw in a Phillips head screw with a flathead screwdriver? It can be done, but it doesn't feel quite right. And once you've found the right tool, you'll kick yourself for trying to get by with a compromise. That applies to computer products as well.

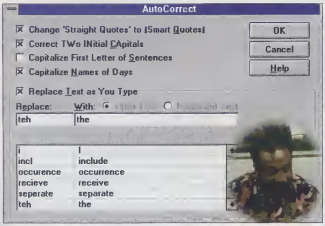
From the hundreds of products that passed through *PC Computing*'s Usability Labs this year, a handful showed enough design innovation to recast the way we work. They advance your personal productivity by changing the way you think about computing.

In the pages that follow, we showcase the very best products to emerge from the Usability Labs, and some of our editors' personal favorites. Each demonstrates design excellence, craftsmanship, and bold innovation. Each should make you think about the way you work—and the ways you can work better not only today, but well into the future.



"Wow, it's easy to find files with WordPerfect. I can load a file with just one mouse click instead of eight with other word processors."
NETWORK ENGINEER

Word 6.0 for Windows Telepathic software? Not exactly, but Word 6.0 for Windows' AutoCorrect feature comes as close to knowing—and fixing—your bad habits as any professional secretary. The program learns



"No lags—Word keeps up with my typing. If I misspell a word, it's corrected as soon as I hit the space bar."
TECHNICAL SUPPORT SPECIALIST

your most common typing errors, and if so instructed, automatically corrects them. It capitalizes the first letter of a new sentence, and handles a host of other pesky typographical chores. You can even add your own list of difficult-to-spell and tough-to-type phrases.

Kudos to Word 6.0 for Windows' bubble help as well. Borrowed from the Mac, it removes the mystery—and fear—of clicking on unknown icons.

Word 6.0 for Windows / Microsoft Corp. / (800) 426-9400 / $289 / *Reader Service No. 816*

WordPerfect 6.0a for Windows How many of us truly have the time or talent to design gorgeous documents from scratch? With WordPerfect 6.0a for Windows, you don't need to. It comes with more than 70 templates—enough to provide variety, tone, and style to virtually any document you create.

WordPerfect's Coaches simplify even the most complicated tasks. Like personal tutors, Coaches walk you through tasks such as adding footnotes, merging letters or envelopes, and importing graphics. An animated hand glides across the screen, pulling down the proper menu options one by one, so that you're more likely to remember the procedure in the future.

Then again, WordPerfect automates so many monotonous chores, you won't need a Coach for much of what you do. For example, the program automatically recognizes and converts a file from a foreign format when you try to load it. You can copy, rename, print, or delete files—or create subdirectories—with just a few keystrokes. Other word processors should take note: These basic file-management capabilities give WordPerfect an enviable edge.

WordPerfect 6.0a for Windows / WordPerfect/Novell / (800) 321-5906 / $289 / *Reader Service No. 817*

Dashboard 2.0 We don't really need to join the chorus of critics who regularly beat up on Windows' Program Manager. Let's just say it's one of the GUI's least elegant features. Instead, direct your attention to Hewlett-Packard's Dashboard 2.0, a speedy and intuitive shell for launching and organizing applications and utilities.

Simply drag the applications you use most often to

Network utilities—vital, but set aside 100K

DOS 6 utilities—handy, but about 120K

Multimedia—fun, but can you spare 50-80K?

Internet utilities—where will you get 120K?

If you don't have QEMM 7.5, what else have you sacrificed?

Sooner or later, as you push the limits of your PC's capabilities, you will run into a wall. Memory limits. Drivers that won't load. Crashes. "Out of Memory" messages. And you'll run into this wall whether you have one megabyte in your PC or 16.

That's why millions of people, from PC gurus to novice users run QEMM®. It fixes memory problems and keeps your PC performing at its best.

Introducing QEMM 7.5 It Makes Room for All the Good Stuff

Our newest QEMM takes into account the greater demands you're putting on 'conventional' memory today: device drivers, sound cards, disk compression, caches, network utilities, CD ROM drivers, etc. Not to mention all the stuff you want for tomorrow, like the drivers you'll need for Internet utilities. It finds room for all those things so you don't have to sacrifice capabilities you want—now or in the future.

MemMaker, the memory utility that comes with DOS 6, does an OK job of delivering additional memory, but it just hasn't kept up with demanding users.

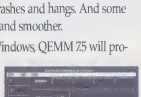
Say you wanted to run a mouse, sound card, SmartDrive, your DOS 6 and Novell utilities, and your Microsoft Bookshelf '94 CD ROM. You couldn't with MemMaker. Not unless you were willing to manually 'tune' it. And then you might end up with 490K or so to use. But QEMM 7.5 routinely returns 634K of conventional memory. And when you consider as little as one 'K' of memory makes the difference between a program loading or not, you can see where an additional 140K or so could be vital.

Hot new features

- 100% Windows installable
- Faster 32-bit memory model
- PCMCIA support
- *Stealth Stacker* saves 8-32K
- *QuickBoot* saves time
- *Optimize/Restore* lets you revert to recent settings

A side benefit of running QEMM is that with memory 'elbow room' you get more reliability—fewer crashes and hangs. And some programs (especially games) run faster and smoother.

When you run DOS programs in Windows, QEMM 7.5 will provide benefits for those programs, too. Many productivity programs won't even run without it unless you sacrifice drivers and other goodies.



Our new Manifest memory analyzer now runs in Windows. And it's still free with QEMM.

QEMM 7.5 comes with a new version of our award-winning memory utility, Manifest, which reports details you can't find out any other way—like how Windows and the programs running under it are using memory or what software is using your IRQs.

There are dozens of new features and improvements to our new QEMM, making it even faster and safer. Find out for yourself. Visit your favorite software dealer or call (800) 571-4860 for a free brochure.

Stop making sacrifices. Get QEMM 7.5—the safest, most powerful memory manager for Windows, DOS and games.

Quarterdeck

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Quarterdeck, 150 Pico Boulevard, Santa Monica, CA 90405 (800) 571-4860 Fax (310) 314-4219

Quarterdeck International Ltd., B.I.M. House, Crofton Terrace, Dun Laoghaire Co. Dublin, Ireland Tel. (353) (1) 284-1444 Fax: (353) (1) 284-4380

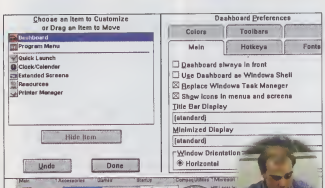
Registered U.S. users of earlier versions of QEMM may purchase upgrades from dealers or direct from Quarterdeck for $29.95 plus $5 shipping & handling. Call (800) 354-4757.

Circle 187 on reader service card.

Test Report: Visio 3.0, LaserJet 4Si MX, Cyrix Cx486DRx2

the Quick Launch menu, then invoke them with a single click. Also just a click away is a detailed report of your available system resources and RAM. Every aspect of Dashboard is customizable—from its icon sizes to their positions on the screen. You can even make icons appear with or without labels. In fact, the entire utility panel can appear vertically or horizontally, anywhere on the screen you specify. Such top usability would be pleasing enough, but also consider that Dashboard performs its magic using less memory and system resources than Program Manager.

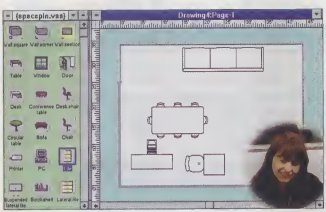
Dashboard 2.0 / Hewlett-Packard / (800) 637-7740 / $49.95 / *Reader Service No. 818*



"Nice. Files, system utilities, applications . . . I can get to everything I need from one toolbar. Dashboard is simple to customize, too."

INFORMATION SYSTEMS SPECIALIST

Visio 3.0 The paradox of most drawing packages is that you need to have professional drawing skills to do much with them. Not so with Visio 3.0. Select one of its 22



"In Visio, it's easy to see room variations by just dragging and dropping shapes—without throwing my back out!"

INTERIOR DESIGN STUDENT

stencils, then choose one of the more than 750 SmartShapes. Drag it to your drawing, place it where you want it, and voilà! Business presentations, flowcharts, and reports come alive with professional art few of us have the skill to render. Suddenly, documents you'd never consider dressing up teem with informative and appealing graphics. Visio even adapts itself to your work environment—automatically mimicking the toolbars in Microsoft's Office or in Lotus's SmartSuite.

Visio 3.0 / Shapeware Corp. / (800) 446-3335 / $125 / *Reader Service No. 819*

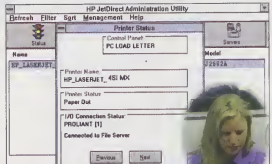
LaserJet 4Si MX Imagine a printer that connects simply and easily to just about any network: Ethernet, Token-Ring, AppleTalk, or all three. It would come with all the software you'd need to configure, manage, monitor, and diagnose problems. It would be fast, jam-resistant, and pleasingly quiet. That's what Hewlett-Packard envisioned in designing its LaserJet 4Si MX.

Despite our repeated attempts to jam the printer by feeding it folded and torn pages, the LaserJet 4Si MX tenaciously sent them through. On the rare occasions when jams did occur, we were able to free them in a matter of seconds. Whether your documents arrive in PostScript or PCL 5, the LaserJet 4Si MX automatically recognizes the printer language and produces perfect output. This printer even talks back to you, alerting you to an empty paper tray before you walk down the hall to discover your document is No. 39 in the print queue, thanks to a tray that's been empty all morning.

LaserJet 4Si MX / Hewlett-Packard / (800) 752-0900 / $4,495 / *Reader Service No. 820*

Cyrix Cx486DRx2 Walk into just about any office in America and you'll find a legacy of 386 PCs—perfectly good systems stocked to the gills with fast video cards, big hard drives, and decent monitors. They have everything going for them . . . except moxie. Today's power-hungry applications simply demand more processing muscle, which renders those old 386s as junk, right?

Wrong. Cyrix's Cx486DRx2 processor upgrade breathes new life into old systems. An unbeatable way to raise the return on your original investment, the upgrade costs a fraction of the price of a new PC. Even MIS people like it: The first version of the Cx486DRx2 was for DX systems, which required you to swap out



"The LaserJet 4Si MX's JetAdmin utilities keep you up-to-date with the goings on, while you sit at your desk."

KYLA K. CARLSON, ASSOCIATE EDITOR

You don't have to sit together to work in the same application together.

Introducing LiveLAN.™

She sits on the 19th floor.

With PictureTel® LiveLAN collaborative computing software, you and a colleague on the same LAN can work in the same application at the same time — so you can save time. LiveLAN is even audio/video capable: add standard multimedia peripherals to use your PC as a high-quality speakerphone; add videoconferencing for face-to-face collaboration.

Anyone with Windows™ 3.1 on a Novell® network can collaborate with LiveLAN. Sharing applications is as easy as clicking an icon.

COMPAQ Qualified Solution

But they both share the same window.

You can share as many applications as you need, for maximum productivity. And to ensure LiveLAN seamlessly

LIVEManager at work.

integrates into your network, LIVEManager™ lets network managers tailor usage, so the integrity of your network remains intact.

He sits on the 5th.

Start collaborating on your LAN today: LiveLAN starts at less than $250 per node. If this sounds like the way you'd like your network to work, find out more about LiveLAN. Call us at 1 800 646-PCTL, ext. 40.

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Circle 286 on reader service card.

Test Report: ThinkPad 750C, 14,400 bps PCMCIA Fax Modem with XJack

"With the SX version of the 386-to-486 chip, it's so easy you'll think you forgot something. Just snap it on."
ADAM MEYERSON, SR. TECHNICAL EDITOR/LAB DIRECTOR

the socketed CPU for the upgrade. With the SX chip, however, you don't even have to remove the old 386.

Software installation is just as easy. It operates transparently, posing no conflicts with Windows or your applications. Not only does the Cyrix upgrade make a hard process easy, it also gives you a serious performance boost—as much as 65 percent.

Cyrix Cx486DRx2 / Cyrix Corp. / (800) 848-2979 / $249 / *Reader Service No. 821*

ThinkPad 750C If the display doesn't seduce you (10.4 inches of active-matrix splendor, and yes, the colors are richer than those on your desktop monitor), the keyboard will (crisp to the touch, full-sized keys—including spaces between F4 and F5, and F8 and F9). It was the first machine to make a serious case for scotching your desktop PC altogether. Today it remains the vanguard of portable computing.

The ThinkPad was designed with productivity-on-the-go in mind. Smack-dab in the middle of this machine's success lies its greatest innovation: the TrackPoint II. So, maybe it looks like a misplaced eraser. Hands never have to leave the keyboard, and southpaws and righties work equally well with it. No wonder notebook PC makers everywhere are licensing it from IBM.

Cleverly hidden but easy to access from under the keyboard are the floppy drive, battery, hard drive, and system RAM. Each of these components can be removed and upgraded—no tools required. With two Type II PC Card slots, a full complement of ports, and a superb (and handsome) multimedia docking station, the ThinkPad may very well give you the courage to kiss your desktop clunker good-bye forever.

ThinkPad 750C / IBM Corp. / (800) 772-2227 / $3,495 / *Reader Service No. 822*

"Other notebooks may come and go, but from a usability viewpoint, IBM clearly makes the industry-standard notebook."
PAUL SOMERSON, VP, EDITORIAL DIRECTOR

"The Megahertz XJack is a breakthrough in portability—keeping it simple. No extra cables, no extra problems."
SCOTT NAYLOR, ASSOCIATE TECHNICAL EDITOR

14,400 bps PCMCIA Fax Modem with XJack

There are two constants with PC Card modems: Most don't work right out of the box, and they inevitably include some type of oversized adapter cable—appropriately called a dongle—that's as easy to lose as a matching sock. Megahertz's 14,400 bps PCMCIA Fax Modem with XJack solves both problems and offers superior compatibility, to boot.

Time and time again, the Megahertz was consistently the easiest to install. Documentation is clear and concise, and illustrations in the extra Quick Start Guide provide a big help. Included is a complete list of software the Megahertz works with, as well as detailed initialization strings for software without embedded support. Megahertz also includes direct toll-free support numbers—and doesn't bury them like Easter eggs. But the company is well aware that few people will ever actually have to call.

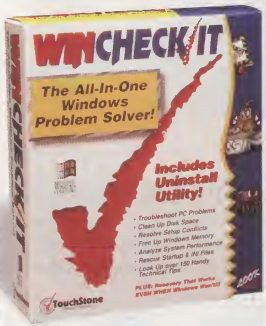
14,400 bps PCMCIA Fax Modem with XJack / Megahertz Corp. / (800) 527-8677 / $239 / *Reader Service No. 823*

ADAM MEYERSON

We're Always Looking for Trouble.

"WINCheck✓It offers a complete package of utility and troubleshooting tools." -Windows Magazine • October, 1994

"WINCheck✓It targets both the advanced user and the novice." -Computer Retail Week • August, 1994



Is your hard disk too crowded? Does your system seem slower than it used to? Has Windows stopped working when you've tried to fix things? If so, you need a little help from WINCHECK✓IT:

- Uninstall Unwanted Applications
- Clean up Disk Space
- Resolve Setup Conflicts
- Free Up Windows Memory
- Analyze System Performance
- Compare Startup & INI Files
- Test Hardware Reliability

Plus: Recovery That Works EVEN WHEN Windows Won't!!!

WINCheck✓It, the All-In-One Windows Problem Solver, is the fastest, easiest way to end your PC troubles.

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1-800-531-0450

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Circle 171 on reader service card.

MOBILE PENTIUM.

INTRODUCING THE T4900CT PENTIUM NOTEBOOK.

The 75MHz mobile Pentium™ processor from Intel, with state-of-the-art Tape Carrier Packaging (TCP), is designed specifically for notebooks. Toshiba's engineers have crafted the T4900CT using this processor, so there is no need for fans or special cooling systems. Then they've added advances

T4900CT FEATURES:

- 75MHz Intel Pentium™ 3.3 volt processor, 16KB cache
- 10.4" dia. color SVGA TFT-LCD active matrix display
- 810 Million Byte (=772MB) HDD
- 8MB RAM expandable to 40MB
- Two PCMCIA slots (10.5mm and 5mm)
- VL local-bus video
- Integrated graphics accelerator
- 65,536 (64K) simultaneous colors
- .WAV Audio and MIDI sound
- Audio jacks: headphone/speakers and microphone
- NiMH battery for extended life
- 6.9 lbs.
- 3.5" 1.44MB floppy disk drive
- Accupoint™ integrated pointing device
- Pre-installed software: DOS, Windows for Workgroups® Windows Sound System™, Run Time Video for Windows™, Fri-ease™ software and Indeo™ video
- Toll-free Technical Support—7 days a week, 24 hours a day

intel inside pentium processor

3 YEARS

Energy Star

PORTABLE MAXIMUM.

Dock into the optional Desk Station IV for instant connection to your monitor, full-size keyboard, printer, and network.

The T4900CT with Desk Station IV is all the computer you need.

The 10.4" color active matrix screen displays 65,536 (64K) simultaneous colors for stunningly realistic images and brilliant graphics.

10.4" DIA.

Take all your files with you, including full-motion video and multimedia with the 810 million bytes (=772MB) hard disk drive.

810 MILLION BYTES

indeo INTEL VIDEO TECHNOLOGY

Indeo video bolstered by the 75MHz mobile Pentium provides smooth playback of full-motion and full-screen video.

The built-in sound system includes a microphone and speaker, plus ports for an external microphone and speakers or headphones.

Dual PCMCIA expansion slots (Type II and Type III) run simultaneously—for connection to your LAN, fax/modem and more.

like an AccuPoint™ integrated pointing device, 10.4" color active matrix display, and plug-and-play connection to peripherals. You can even blast MIDI and .WAV Audio through the built-in speaker or audio jacks for more dynamic multimedia presentations. See and hear this Pentium-powered touring machine today. **Call 1-800-457-7777 for the dealer nearest you.**

In Touch with Tomorrow

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Circle 215 on reader service card.

Help

NEIL RANDALL PREPARES YOU FOR WINDOWS 95

Roll Out Whatever Comes Next

Changing your spreadsheet or word processor to its next revision usually won't bring your business to its knees. Upgrading your operating system, however, could leave you supine. Remember when you installed DOS 4.0, then DOS 5.0 and 6.0? You probably fretted all the way through the installation. If you're in charge of more than one PC, you probably suffered angina. Now think back to that first installation of Windows 3.0. The question wasn't *how* your modem or printer would work. The question was *if* they would.

At least Windows rode on top of DOS. But when you started installing non-DOS–based systems such as OS/2, your fretting turned to praying. Memory and disk space requirements were at least predictable. But what about all those patiently downloaded drivers, all those painstakingly configured devices, all those crucial networking concerns? Just thinking about it was enough to make you lose sleep.

Welcome to insomnia: Windows 95 is just around the corner. And make no mistake, there *will* be problems. Microsoft is trying to ensure that everybody's configuration will find happiness on upgrade day, but they won't get everything right. No company ever has: There are simply too many possibilities.

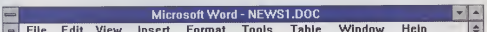
Like OS/2, Windows 95 is far more than just an upgrade. It's a replacement for your entire operating system, a complete rewrite of all operating system components. There are software issues to resolve, hardware problems to deal with, and even if you get that all sorted out, there are user attitudes to worry about.

Adventures with Software Changing an operating system creates nagging little problems that sap away productivity. Until you've replaced all of your current programs with their 32-bit counterparts running your operating system's native code, there will be compatibility and configuration hassles. And don't expect to replace all those applications overnight. It will take the better part of a year.

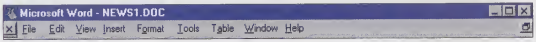
Remember that if you're installing OS/2 or Windows 95 on a DOS-based

SNAPSHOT A NEW LOOK AND BETTER PERFORMANCE TO BOOT

More than a Pretty Face Windows 95 looks great—so great that it provides an instant facelift to make existing applications fit the Windows 95 mold. But there's more to Windows 95 than just looks—there's the small matter of performance to consider, too. Here's what we mean.



1. Old App When you run your existing application, let's say Word for Windows, it gets its title and menu bar looks from some font files and a couple of DLLs.



2. Look Again By making substitutions for these files, Windows 95 gives your old application a new look—for free! Never fear, though: Your apps will work the same.

3. Surface Beauty Merely changing the look of a 16-bit Windows 3.1 application won't change its performance: You'll need the 32-bit application for that. We autoformatted a document using the 16-bit version of Microsoft Word 6.0 and the unreleased, 32-bit version on a prerelease version of Windows 95 (technically called Beta 1). We saw an incredible boost from those 16 extra bits.

SOFTWARE WINDOWS 95 UPGRADE CHECKLIST

- ☑ **Installation** Windows 95 preserves your configuration files, but plan to reinstall fax and other programs.
- ☑ **Disk Utilities** Anticipate trouble. Stacker 4.0 and PC Tools 2.0 couldn't even handle Windows for Workgroups' 32-bit file access.
- ☑ **Other Utilities** Don't have your system automatically load antivirus or backup programs—they may confuse the installation.
- ☑ **DOS Programs** Watch for memory and display problems with Windows 95's DOS support.
- ☑ **Network File Sharing** Prepare to tweak Windows 95 to get file sharing to work properly.
- ☑ **E-Mail** Expect that you will spend some time keeping your current e-mail structure intact.
- ☑ **TCP/IP** Back up your TCP/IP DLLs and other network-specific files so Windows 95's TCP/IP stack doesn't overwrite them.
- ☑ **Specialty Programs** Expect trouble with shareware, add-ons, or homegrown programs.

machine you're *replacing* your operating system, not just *upgrading* it. No matter how backward-compatible these systems promise to be, not everything's going to work smoothly. As a general rule, expect problems with every installed program. That way, you'll be delighted that the majority of them actually work.

Some applications might even work better than before. For instance, Mac users got significant speed enhancements by moving to System 7.5. A well-configured OS/2 2.1 station runs DOS programs—and even some Windows 3.1 ones—faster than Windows 3.1. Windows 95 users will find that existing Windows programs have been enhanced with a different look and, in some cases, the addition of right-mouse-button menus. The programs sport new minimize, maximize, and close buttons. They'll also find that switching from one program to another is faster and more efficient than under Windows 3.1.

Better yet, users who upgrade to the 32-bit versions of their applications (applications written to take advantage of the Win32 or Win32s programming interfaces) will see a performance boost in many tasks. Most computers can talk to memory using long (32-bit) words; Windows 3.1, however, talks to memory in 16-bit words. Windows 95 can talk in 32-bit words, so any 32-bit application will be able to read and write information to memory faster.

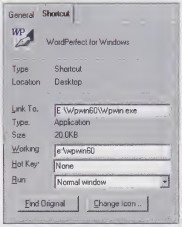
But not everything will be this nice. If you use disk compression software such as Stacker or DoubleSpace (a.k.a. DriveSpace), get rid of it before you upgrade. That's certainly the case with OS/2, and the jury's still out on how Windows 95 will handle compressed drives. Simply do away with your disk compression software to save yourself unnecessary anguish. Actually, *any* file or disk utility can stand careful testing before you try to use it with the new operating system. If you frequently defragment your hard drive, for example, make sure your defragmenter still works.

Before installing the new operating system, check the startup files for all machines at your site—files such as CONFIG.SYS, AUTOEXEC.BAT, SYSTEM.INI, and WIN.INI. Get rid of any programs that boot automatically but aren't absolutely necessary. Take a special look at virus checkers, backup utilities, and drivers that you may not be using any more. Hey—why make the upgrade more complicated than it already is?

Finally, insist (politely) that users uninstall shareware add-ons and other potentially oddball programs. Most importantly, have them uninstall Windows shells such as Norton Desktop, Central Point's PC Tools for Windows, or HP's Dashboard. Just assume they won't work.

In Windows 95's case, the major software packages aren't much of a problem. Microsoft will make sure that its own applications (Word for Windows, Excel, and so on) are fully Windows 95–compatible, and they're not foolish enough to infuriate millions of users by rendering the major non-Microsoft programs (WordPerfect for Windows, Lotus 1-2-3, Borland Paradox, and so on) suddenly incompatible. The problems will lie with the lesser-known programs, utilities, and once again, the networks. These probably caused most of your

SNAPSHOT HELP YOUR SOFTWARE MAKE THE LEAP



Right Click! To help users get beyond their initial discomfort with a new operating system, why not show them some of the most pervasive features? For example, you can demonstrate Windows 95's support for right-clicking on the desktop to display properties such as those we've called up here. Another new feature in Windows 95 is that it supports links, called Shortcuts. Using a Shortcut, you can access a file or program from several places on your disk at once—without sacrificing disk space.

HARDWARE WINDOWS 95 UPGRADE CHECKLIST

- ☑ **RAM** Although Windows 95 is expected to work with 4MB of RAM, play it safe and go for 8MB.
- ☑ **Hard Drives** You'll need 240MB minimum on your hard disk, or else you'll run out of space quickly.
- ☑ **Printers** If Windows 95 doesn't include your printer's driver, get one from the printer manufacturer.
- ☑ **Video Cards** Get the manufacturer's driver, or else Windows 95 generally won't run as fast.
- ☑ **CD-ROM and Sound Boards** Use Windows 95's Control Panel to get your CD-ROM and sound board working together.
- ☑ **Monitors** You might be forced to use a generic driver if you own an older, less popular, or specialized monitor.
- ☑ **SCSI Boards** Make sure Windows 95 supports your SCSI board's BIOS, or you could lose access to gigabytes of storage.
- ☑ **Networks** The good news: With Windows 95's built-in support for various network adapters, protocols, and functions, you can configure hardware easily.

problems under Windows 3.1, and you can expect at least some of them to cause problems under a new operating system.

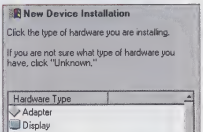
Hardware Hardships Hardware causes problems for a host of reasons. First, if you want to be absolutely certain that your hardware will work with your new operating system, you should know and understand the hardware intimately: how it works, how it wants to be treated, and how the computer interacts with it. This isn't something that everyone knows or wants to know—even a seasoned IS veteran won't know the technical details about everything. Second, hardware can be damaged. Trying to run a monitor at a refresh rate higher than it supports can cause irreparable damage. Third, and particularly in our Intel world, hardware has come to be associated with DIP switches, jumpers, and those always fascinating IRQ, DMA, I/O, and BIOS settings.

Even on a stand-alone machine, an operating system upgrade is time-consuming, tedious, and frustrating. Don't believe what the box or the manual says, or what you've read in the operating system manufacturer's press releases and prerelease guides. Getting a new operating system up and running—which means that every piece of hardware in the computer works as well as it did before—will take at least a week of error messages, missed connections, and nearly continual reboots. Just remember, it took hours of cumulative time to configure your existing hardware so the SCSI controller, fax modem, and video board didn't conflict with the sound board and scanner. With a new operating system you face the additional problem of learning new configuration software to make all that hardware work again.

If you're in charge of a network, things get exponentially more difficult. Trying to make a bunch of computers talk to each other regularly and without problems is tough work. As soon as you throw networking cards into the mix you have protocol and shared service difficulties on top of IRQ and I/O conflicts. While some operating systems—Unix and the Macintosh, for example—are better designed than others for networking, never upgrade an operating system on a network without full testing and complete planning. Even a four-station office network needs this kind of attention. Forge ahead blindly, and you're asking for massive downtime.

Getting the proper hardware drivers is crucial to a smooth operating system upgrade. If you have an outdated or obscure video card or printer, don't expect to find a specific driver shipping with the operating system itself. Operating system vendors generally support high-volume, recently released products. You'll have to wait for your video card or printer manufacturer to release a driver. OS/2's early lack of support for printers and video cards is legendary, but Microsoft has never been comprehensive about including drivers, either. Expect Windows 95 to be rich with drivers for networking cards, printers, video cards, and sound boards, but don't expect every driver for every piece of hardware to be included. Thankfully, Windows 95 promises to let you use your old 16-bit drivers if you must. However,

SNAPSHOT MAKE HARDWARE INSTALLATION EASIER



The Wiz: Hardware can be a hassle for any operating system upgrade. Windows 95's New Device Installation Wizard can help you set up new hardware—if you've got the right drivers. Most hardware vendors are working on drivers for Windows 95, but early on in the game, you may have some trouble finding them. Expect nagging hardware problems for a week after installation and a large online bill for downloading new drivers.

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PC WORLD

OCTOBER 1994 LTE ELITE 4/75 CX

USERS WINDOWS 95 UPGRADE CHECKLIST

- ☑ **In with the New** Tell users why they should "fix" Windows 3.1.
- ☑ **The *X.0* Curse** Share the benefits of installing the first release of a product and not waiting for the first revision.
- ☑ **The Desktop** Encourage users to give up their finely honed program groups for Windows 95's desktop to make it easier for you to bring them into the new application.
- ☑ **Mouse** Prepare yourself. Some users will love Windows 95's right-button support and cascading menus. Others won't.
- ☑ **Basics** Show users how cutting, pasting, and other basic functions are easier in Windows 95.
- ☑ **Task Bar** Get users accustomed to working with Windows 95's task bar to switch among their running applications.
- ☑ **Favorite Utilities** Prepare to lose utilities. Windows 95 probably won't work with favorite add-ons.
- ☑ **Training** Set up training for the first weeks after the upgrade.

as with any other hardware driver, you should make certain you can use them before launching a full upgrade.

User Friendly You're probably eager to try out new machines, new programs, and even new operating systems. Don't think, however, that everybody in your company feels this way. Given a choice between new frontiers and comfortable living rooms, most people in the world will opt for the latter. You can expect an even more extreme version of this tendency when it comes to computers. Remember: Most users treat computers merely as tools to get things done. They have no interest in using a new, potentially better tool when the old one already does all they want it to.

Even if you can get their hardware working, complete the installation, and make sure that everybody's critical software works just fine, you won't necessarily win the hearts and minds of your colleagues.

A new operating system means a new way of performing tasks. It also means two problems. First, as we just mentioned, most people don't want a new way to perform tasks. Second, the few eager-beavers won't necessarily use the new operating system efficiently or capably. It's your job to ensure that the first group is mollified, and that the second group is well-trained.

Prepare for the operating system change by letting people know it's going to happen, and when. Then, offer some demonstrations of the new operating system, as soon as you have a station that works well. (Having it work well is key—nothing erodes confidence worse than a demonstration that falls on its face.) In your demonstrations, show the users clearly that their major programs and equipment will work fundamentally as they did before, because that's the first reassurance they'll need. Then, one at a time, point out the major interface changes, demonstrating each in detail and showing the users how they will simplify their existing tasks. As long as you feel confident the system won't crash, consider letting them work with it, as well. Then, schedule hands-on training sessions immediately after the upgrade itself. In other words, treat your coworkers like people who are probably resistant to any change, especially if it's forced upon them with a like-it-or-leave-it attitude.

Primarily, users need to know how the new operating system will help them at their jobs. They also need to know what's going to be different from before, everything from keystrokes to mouse-clicks to the look of their computing environment. They'll want hotkeys to work as they always did, and they'll want their macros and other productivity enhancements in place and operating. Those are hardly unreasonable demands.

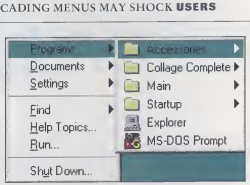
All that said, keep in mind that some users won't be amenable to the new system no matter what you do to ease the transition. There will be jokes and complaints, and horror stories will be gleefully passed around. Training people and keeping them informed will minimize this attitude, but you'll never avoid it completely.

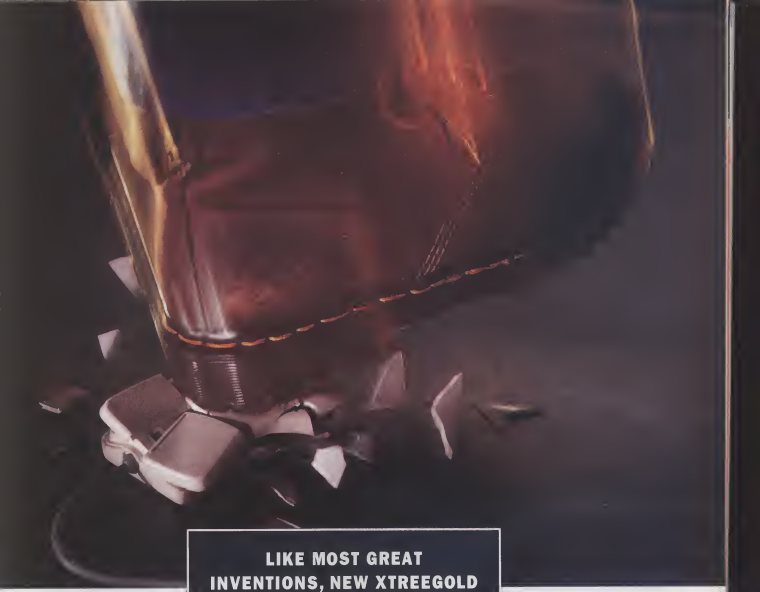
On a last note, there are no hard-and-fast rules for upgrading. However, there are a few basic commandments: Be patient, be confident, be careful, and be skeptical. There's also an overriding commandment from a group older than DOS, OS/2, System 7, and Windows 95 combined. Very simply: Be prepared.

NEIL RANDALL *is the author of* Teach Yourself the Internet: Around the World in 21 Days (*SAMS, 1994*). *You can reach him at nrandall@hookup.net, or on CIS at 73637,1733.*

SNAPSHOT CASCADING MENUS MAY SHOCK USERS

Dramatic Improvement: Brace users for an operating system's most dramatic changes. Windows 95's toolbar, for example, with its cascading menus and icons in several locations, will jar some Program Manager junkies.





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PICK A GRAPHIC FORMAT, SAVE A MEGABYTE

Warning: Graphical Language Ahead

You've got better things to do than make pretty pictures, right? Well, wrong. Mere words don't cut it anymore—to make your point to people deluged with words, an appropriate graphic speaks volumes. It also takes up volumes: A single 300-dpi black-and-white picture is worth 12,000 words—at least in terms of disk space.

Your task: to say it with pictures without waving good-bye to precious disk space. Don't use 24-bit color where 8-bit will do—you could shave 75 percent off your file's size. (Likewise, never use color where grayscale is all you need.) Next, pick the right file format for your graphics. This is a less cut-and-dried operation, but you could be doubling your file size if you make the wrong choice.

The optimum format depends on whether your graphics are monochrome, grayscale, or color, and on the number of colors used. And of course, on whether the applications you use support the format.

The Monochrome Set Under Windows, one of the most widely used file formats is the Microsoft-developed bitmap file. It's used for desktop wallpapers and is the primary format used by Windows' own graphics applet, PaintBrush. It's also bloated beyond belief. A typical black-and-white Windows bitmap file is 55 to 60 percent bigger than a typical PCX file, another format supported by PaintBrush.

PCX uses a built-in compression technique called run-length encoding (RLE) that works well on "runs" of same-colored pixels—which makes it especially effective on monochrome images. Although RLE is available for Windows bitmap files, not every program can read all of them (PaintBrush can't).

If you're transporting graphics between PCs and Macs, neither Windows bitmap nor PCX will serve. You need the joint Aldus/Microsoft creation TIFF (tagged image file format), which is widely used on both platforms, and can be compressed using a very well-handled run-length system called PackBits. This is just as well, since uncompressed black-and-white TIFFs are slightly larger than Windows bitmap files. The same TIFF files compressed, however, typically crunch down slightly smaller than PCX files.

Windows bitmap, TIFF, and PCX files can also handle grayscale images, but their formats and compression techniques work a little differently. Windows bitmaps are still disk-gobblers—a hair larger (less than one percent) than TIFFs of the same images.

A compressed grayscale TIFF file shrinks down to around 85 percent of its uncompressed size—making it greatly preferable to a bitmap formatted file. However, even this feat of compression doesn't match PCX, which saves the same amount of graphical information into a file 80 percent smaller than compressed TIFF (and 60-some percent the size of a grayscale bitmap).

In Living Color With 24-bit color files, the story changes completely. The run-length encoding that works so well on low-color depth files fails under this test. Windows bitmap 24-bit files and TIFF 24-bit files are the same size: 10 percent smaller than 24-bit PCXs and 5 percent smaller than so-called compressed TIFFs. And while the same file saved in CompuServe's graphics interchange format (GIF) looks 90 percent smaller, it's no longer a 24-bit image. GIF handles only 8-bit, 256-color images.

The 24-bit format of choice? It's a toss-up between TIFF and Windows bitmap—unless your software handles JPEG. Developed by the Joint Photographic Experts Group, JPEG shrinks high-color files by selectively discarding information. At minimal compression, you barely notice any loss of image quality, even when output to film. But a JPEG file is 66 percent smaller than a comparable uncompressed TIFF or Windows bitmap.

MATTHEW LAKE

TIPS WORD PROCESSORS

WORDPERFECT FOR WINDOWS

Problem: *When you paste text from one document to another, the old formatting for that text is also pasted into the current document, sometimes giving you, for example, Times Roman 10 point in the middle of a page of Helvetica 12 point text.*

Solution: Use an almost hidden feature of WordPerfect 6.0a called Paste Simple. Paste Simple strips any text of all its formatting before it's pasted into a document, so the pasted text takes on the formatting of the surrounding words. Just use Ctrl-Shift-V instead of the regular Paste key (Ctrl-V) when you want to paste unformatted text.

RON WHITE
SENIOR CONTRIBUTING EDITOR

Problem: *Your text (ASCII) files, such as the ones you download from an online service or e-mail, have hard returns at the end of each line.*

Solution: There are two ways to get rid of those hard returns. When you try to open an ASCII file, WordPerfect asks you to confirm that you're opening a text file. Instead, select the ASCII Text CR/LF to SRt (DOS) option, which converts hard returns to soft returns, in essence eliminating all single hard returns (but maintaining the double ones, for separating paragraphs). If the file has been retrieved into WordPerfect and resaved as a regular WordPerfect document, that option will not be available. But there's still hope for you. Here's a simple macro that does it. Note that it places the temporary text XYZ as a placeholder for carriage returns. If for some

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strange reason you use XYZ in your document, substitute every instance of this string in the macro with a string you never use. If you run into this problem often, add this macro to your button bar.

```
Application (A1; "WordPerfect";
  Default; "US")
SearchString ("[HRt][HRt]")
ReplaceString ("XYZ")
ReplaceForward (Extended!)
PosDocTop ()
SearchString ("[HRt]")
ReplaceString (" ")
ReplaceForward (Extended!)
PosDocTop ()
SearchString ("XYZ")
ReplaceString ("[HRt][HRt]")
ReplaceForward (Extended!)
PosDocTop ()
```

RON WHITE
SENIOR CONTRIBUTING EDITOR

Problem: *You need to save repetitive typing in a document.*

Solution: If you have Version 6.0a or later, you can use the QuickCorrect feature to assign text to abbreviations (so that typing *PCC* will yield *PC Computing*, for example). But if there's repetitive text you'll type only in the current document, use a variable. For example, you may never refer to *Benson, Williams, Friedman, Lee and Associates* again, but you need to type this law firm's name at least 20 times in a current contract. First, create this macro and call it A1.WCM:

```
PERSISTALL
VARERRCHK(OFF!)
GETSTRING(VAR1;"Type in variable
  information and press Enter")
IF(VAR1="")DISCARD(VAR1) ENDIF
TYPE(VAR1)
```

Then create another macro called VAR1.WCM:

```
TYPE(VAR1)
```

For best results, add A1.WCM to your button bar. Then select File, Preferences, Keyboard, click on Create, Template, and select your default keyboard as the template. Type a name for the new keyboard and click on OK. Scroll down the list on your left until you find 1+Alt, then check the Play a Macro option under Assign Key To. Click on Assign Macro, and select A1. To use the A1 macro, just click on its button in the button bar and type the text you want to reuse. That text will be inserted at your cursor position. Any time you need to repeat that text, just press Alt-1. You can assign up to nine variables by repeating the process for A2, A3, and so on, and substituting the VAR value and macros with the corresponding values.

R. KEITH THOMPSON
EL PASO, TEXAS

WORD 6.0 FOR WINDOWS

Problem: *You want to pause the Spell Checker to fix another error.*

Solution: Users often discover nonspelling errors in their documents while running the Spell Checker. Some take a mental note to return to the spot later, and others close the Spell Checker. That's not necessary. Just click in the document, make your changes, and then click on the Start button in the Spell Checker to resume operations from where you left off.

NORMA AIELLO
SANTA FE, NEW MEXICO

Problem: *Using keyboard shortcuts, you've selected too much text, and you want to adjust the selection by a few lines.*

Solution: While the text is selected, double-click on the EXT button on the status bar and use the cursor keys to adjust the selection's size.

NORMA AIELLO
SANTA FE, NEW MEXICO

TIPS SPREADSHEETS

MICROSOFT EXCEL 5.0

Problem: *You need a quick way to remove all formats from a cell or from a range.*

Solution: Normally, you'd select Edit, Clear, Formats. But here's a drag-and-drop shortcut: Click on any unformatted cell in the spreadsheet, select the Format Painter button from the button bar and while the pointer looks like a brush, select the range from which you want to remove formatting.

SHANE DEVENSHIRE
WALNUT CREEK, CALIFORNIA

Problem: *Resizing all of the columns in a table to make them the same width can be a tedious and repetitive task.*

Solution: Click on the field name at the top of the first column, then shift-click on the last field name. Place your cursor on the grid between any two columns, and resize by dragging. The new size will apply to all selected columns.

SHANE DEVENSHIRE
WALNUT CREEK, CALIFORNIA

LOTUS 1-2-3 FOR DOS

Problem: *Your spreadsheet contains sensitive data, and you want to quickly hide it when anyone walks by your desk.*

Solution: If you're using Windows, you can press Alt-Tab to switch to another running application, but in DOS, there's no such option. Here's a quick-hide macro that does just that. Type it in an area outside your

HOT TIP WORDPERFECT FOR DOS

Problem: You want to see the ten most-recently used files whenever you launch WordPerfect 6.0b for DOS.

Solution: Create the following macro and name it OPENFILE:

```
DLGINPUG (On!)
FILEOPENDLG
PosLineDown
```

To instruct WordPerfect to run this macro every time the program starts, create the batch file W.BAT and place it in any directory that's in your Path statement:

```
@ECHO OFF
CD\WP60
WP /M=OPENFILE
```

The /M parameter tells WordPerfect to run the specified macro at startup. From now on, type W from any directory on your hard disk to launch WordPerfect.

RENÉ B. DELAUP
NEW ORLEANS, LOUISIANA

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- *Intel Pentium ™ 60/66MHZ Procesor With CPU cooling FAN*
- *OPTi 596/597/822 Chipset*
- *512K Cache Memory*
- *Expandable to 128MB*
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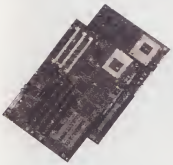
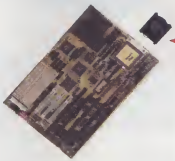
- *Green Cell on board*
- *Light Green Function on board*



DIGIS-H-PCI & DIGIS-PCI MAIN BOARD



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visible display and print range:

```
    A        B
35  \H       {BREAKOFF}
36  AGAIN    {GOTO}IV8192~
37           {GETLABEL}
             "Enter your
             password and
             press [Enter]:
             ',PASSWORD}~
38           {IF EXACT}
             {PASSWORD,
             SECRET}
             {HOME}
             {INDICATE}
             {QUIT}
39           {BEEP}
             {INDICATE
             "Incorrect
             password.
             Access
             denied."}
             {BRANCH AGAIN}
40
41
42  SECRET   trampoline
43  PASSWORD
```

Type your designated password in cell B42. When you enter a password, it will be inserted in cell B43 and Lotus will compare the two cells. There's no way to break out of this macro because of the BREAKOFF command, so note your password carefully. (And don't forget: It's case-sensitive.)

SHANE DEVENSHIRE
WALNUT CREEK, CALIFORNIA

Problem: *Inputting dates is a convoluted process that slows down data entry.*

Solution: To enter a date, you need to type the formula @DATE(YY,MM,DD), but here's a macro to automate the process. Enter it anywhere outside the data range in your spreadsheet, and make sure there's a blank row between the last line of the macro and the first prompt line.

```
    A    B
25  \d   @date({indicate
         Y}(?),{indicateM}(?),
         {indicate D}(?))
26       {CALC}~{INDICATE}
27       /RFD1~~
28       /WCS12~~
29
30  Y    Type 2 digits for the
         year and press [Enter]
31  D    Type 2 digits for the
         month and press
         [Enter]
32  M    Type 2 digits for the
         day and press [Enter]
```

SHANE DEVENSHIRE
WALNUT CREEK, CALIFORNIA

TIPS GRAPHICS

FRACTAL DESIGN PAINTER

Problem: *You want to add a drop shadow to an object.*

Solution: Copy the object by holding down Ctrl and dragging it anywhere. Then fill the new object with black, or whatever color you like. Layer the two objects so that the copy is offset and behind the original. Use the Feathering and Opacity controls in the Floating Items palette to create the desired soft-edged shadow. Finally, Group these two items together so when you move the original object around, its drop shadow will travel with it.

TARA WILLIAMS
BERKELEY, CALIFORNIA

ALDUS FREEHAND 4.0

Problem: *PostScript can't handle your need for color to be transparent.*

Solution: FreeHand 4.0 has a tough-to-find feature for working around PostScript's transparent color shortcomings. First, draw two objects and make them intersect.

To blend the colors of each object into a transparency, hold down Alt as you select Arrange, Path operations, Intersect. FreeHand creates a clone piece of the intersection with a mixture of each piece's colors. This piece can be moved away from the original parent pieces, so be sure to group the objects afterward.

MATTHEW LAKE
SENIOR EDITOR

HP DESKSCAN II

Problem: *After you've scanned a photograph from a magazine, newspaper, or book, an unsightly pattern of dots covers the resulting scanned image.*

Solution: This is called a moiré pattern, an interference pattern caused when the dots of the halftoned image in the magazine don't quite align with the dots of light the scanner reads in. There are three solutions. One is to set the image at a slight angle on the scanner. If this doesn't help, do one of two things in DeskScan II: First, change the grayscale scanning option to a diffusion halftone. Select Custom, Image Type, and select Diffusion from the Halftone list box. The finer diffused dots should reduce the screened effect in the scan. If all else fails, reduce the image during scanning, which will minimize the original dot pattern.

MATTHEW LAKE
SENIOR EDITOR

CORELDRAW 5

Problem: *You want to make jigsaw puzzles out of a bitmapped image.*

Solution: This is easier than you might think. Import a bitmap and select PowerClip to turn it into a grouped object, then break the group apart into separate objects (puzzle pieces).

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MATTHEW LAKE
SENIOR EDITOR

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Behold Samsara: The Final Incarnation

Krishna said: Manifold the renewal of my birth . . . I come, and go, and come. When righteousness declines, O Bhavata! When wickedness is strong, I rise, from age to age, and take visible shape, and move, a man with men, succoring the good, thrusting the evil back, and setting Virtue on her seat again. —*Bhagavad-Gita*, ca. 500 B.C.

Five things constitute perfect Virtue: gravity, magnanimity, earnestness, sincerity, kindness. —Confucius, *Analects*, ca. 500 B.C.

Virtue's an ass. —Sir John Vanbrugh, *The Provok'd Wife*, A.D. 1697.

Consider the virtues of a small program that sits unobtrusively in a little-used corner of your screen. It keeps track of impending danger, warns you as Windows slowly goes to hell, and offers a one-click opportunity to set Windows right—starting over fresh—should you so desire.

That's where we're headed with Samsara (named after the Sanskrit term for rebirth). If you have a copy of Visual Basic 3.0, you can follow along and build Samsara as we did, piece by piece. If you don't have Visual Basic handy—indeed, if the thought of writing a computer program scares the living Gates out of you—you can still download a free copy of SAMSAR.ZIP from PC Contact's data library 3 (Utilities/Misc.) and use it to ward off the daemons within Windows. (See page 284 for more information on PC Contact.)

We hope that these three columns (in the October, November, and December issues) have shown you that Windows programming *ain't that tough*. Samsara is a full-scale, commercial-quality Windows program that takes about three dozen lines of easy-to-read Basic code (OK, OK, twice that many if you include the comments).

If you've been thinking about dipping your toe into the water and learning about Windows programming, now's the time! And if our little Samsara song 'n' dance here doesn't convince you that Windows Basic programming is for everybody, well, you can still download the program and give it a whirl.

Talk about one of those . . . uh . . . win-win-Win situations . . . .

Finishing Touches To wrap up Samsara, start with the version we finished in the last column. Bring up Form2, the one with the title SAMSARA. Click on the VB Toolbox's push-button icon, the little

HOW TO DO IT

MAKE SAMSARA **EMERGE** FROM DANTE'S DEPTHS

Here's the final code for Samsara. To see the programs, click on Visual Basic's View Code button.

Form1 Object: (general) Proc: (declarations)

```
Declare Function GetFreeSystemResources Lib "User"
(ByVal fuSysResource As Integer) As Integer
```

Form1 Object: Form Proc: Load

```
Sub Form_Load ()
Rem Shrink form down to the size of the 3-D panel
Form1.Width = Panel3d1.Width
Form1.Height = Panel3d1.Height
Rem Move the 3-D panel to the lower right corner
Form1.Top = Screen.Height - Form1.Height
Form1.Left = Screen.Width - Form1.Width
Rem Set 3D Panel's flood color to green
Panel3d1.FloodColor = RGB(0, 255, 0)
Rem Start by "clicking" the Always On Top check
Rem box, then the OK button on Form2.
Form2.Check1.Value = 1 'Change to 0 for not on top
Form2.Command1.Value = True
End Sub
```

Form1 Object: Panel3D1 Proc: Click

```
Sub Panel3D1_Click ()
Form2.Show
End Sub
```

Form2 Object: (general) Proc: (declarations)

```
Declare Sub SetWindowPos Lib "User" (ByVal hWnd As
Integer, ByVal hWndInsertAfter As Integer, ByVal X As
Integer, ByVal Y As Integer, ByVal cx As Integer, ByVal
cy As Integer, ByVal wFlags As Integer)
Declare Function ExitWindows Lib "User" (ByVal
dwReturnCode As Long, ByVal wReserved As Integer)
As Integer
Declare Function GetFreeSystemResources Lib "User"
(ByVal fuSysResource As Integer) As Integer
Declare Function GetFreeSpace Lib "Kernel" (ByVal
wFlags As Integer) As Long
```

Form2 Object: Command1 Proc: Click

```
Sub Command1_Click ()
If Check1.Value = 1 Then
Call SetWindowPos(Form1.hWnd, -1, 0, 0, 0, 0, 27)
Else
Call SetWindowPos(Form1.hWnd, -2, 0, 0, 0, 0, 27)
End If
Form2.Hide
End Sub
```

Continued on page 281

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ZOOM

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   It also eliminates potential color balance and registration problems and provides faster scanning.

4. **Free Transparency Adapter vs. Optional Transparency**
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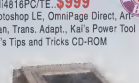

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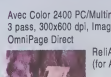

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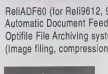

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HOW TO DO IT SAMSARA TAKES FINAL FORM

Samsara's a sophisticated application, and we had a heck of a lot of code, so we spilled some from page 278 into here.

Form2 Object: Command2 Proc: Click

```
Sub Command2_Click ()
End
End Sub
```

Form2 Object: Command3 Proc: Click

```
Sub Command3_Click ()
i = ExitWindows(66, 0)
End Sub
```

Form2 Object: Form Proc: Activate

```
Sub Form_Activate ()
FSR = GetFreeSystemResources(0)
User = GetFreeSystemResources(1)
GDI = GetFreeSystemResources(2)
Msg$ = "Free Sys Resources: " + ↵
↳ FSR + "%"
Msg$ = Msg$ + " User: " + User + ↵
↳ "%"
Msg$ = Msg$ + " GDI: " + GDI + "%"
Label2.Caption = Msg$
FreeSpace = GetFreeSpace(0) \ 1024
Label3.Caption = "Free Memory: " +↵
↳ FreeSpace + " KB"
End Sub
```

oval near the top. Draw a push button in the lower left corner of Form2, and type Exit SAMSARA. Then draw a second push button in the lower right corner, and type Restart Windows.

Next click on the Label icon, the capital A in the Toolbox, and draw two more labels at the top of Form2. (Note that Label1 is the label with the copyright notice.) Click once on Label2, and in the Properties box, set the label's Alignment to 2 - Center. Do the same thing with Label3.

That's the hard part.

To write the code, double-click on the Exit SAMSARA button. Visual Basic puts you in the Command2_Click subroutine; all you have to do is type End. In VB speak, when the user clicks the Exit SAMSARA button, the program is supposed to End. Pretty easy, huh?

The program for restarting Windows is almost as simple. Double-click on the Restart Windows push button and type:

```
i = ExitWindows(66, 0)
```

That 66 tells Windows to restart itself. How did we find it? By looking through the Windows help file that's included with VB Pro; it's called WIN31WH.HLP. In order to use it, you have to tell VB where to find the function. That's the purpose of the Declare ExitWindows statement in Form2's (general) (declarations) section. See the code in "Make Samsara Emerge from Dante's Depths," page 278.

As a little bit o' lagniappe, we've programmed Samsara so every time Form2 is activated—every time the user clicks on the FSR bar in the lower right corner—Samsara pops up with some fairly useful information: the split between User and graphics device interface (GDI) free system resources (FSR is defined as the minimum of these two numbers), and the amount of free memory. You can see the programming for all that in Form2's Form/Activate code in "Samsara Takes Final Form," above.

You're Saved Once you've typed the program, click on File, then Save Project, and hit the right-wedgie (Play) button. Did you spell everything correctly? Does it work the way you want it to? If not, go in and play with it. That's the beauty of Samsara: You can customize it any which way, add a nip here or a tuck there.

When Samsara is working the way you want it to, click on File, then Make EXE File . . . . Then give the program a name like, oh, SAMSARA.EXE. Pop back out to File Manager, and add SAMSARA.EXE to your StartUp group. Reboot your computer and—voilá!—Samsara will become a permanent fixture. (If you ever want to remove it, just move the icon out of the StartUp group.)

For those of you who downloaded Samsara without building it from scratch, there are a few files you have to copy. Look at the README.TXT file in SAMSAR.ZIP for details.

WOODY LEONHARD & VINCENT CHEN

Got any ideas for enhancing Samsara? Let us know! Contact us on the PC Contact forum: Woody at 72241,2125, or Vince at 72241,2221.

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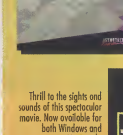

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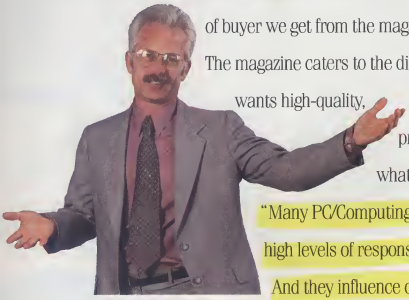

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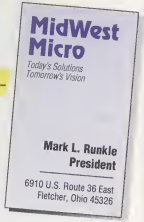

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WINDOWS UTILITY: TALK OF THE TIME

VoiceClock If you've ever missed a meeting or been late to leave the office because you lost track of time, try VoiceClock. Together with your sound card (or the Microsoft speaker driver SPEAKER.DRV), VoiceClock will send you a verbal time reminder. It even displays the current time in the title bar of your applications. Download VCLOCK.ZIP.

DOS UTILITY: IDENTIFY DUPLICATES

TwinFind There are too many duplicate and redundant files lurking on your hard disk, and they're gobbling up precious space. TwinFind will find them even if their names are different—it performs cyclical redundancy checks (CRCs). Download TWFIND.ZIP from PC Contact's data library 3 (Utilities/Misc.).

NETWORKING: RECLAIM SPACE

Space Hound Your server's hard disk is bursting at the seams. Space Hound points the way to outdated files—and files that haven't been touched in a while—so you can delete them. Space Hound requires Windows and VBRUN300.DLL. Download SPCHND.ZIP.

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You can easily get all the public-domain utilities or shareware covered in this month's issue by calling Public Brand Software at (800) 426-3475 or (317) 856-7535. Ask for this month's Editor's Picks from *PC Computing*. They're available for $5 or less per disk (most disks have several utilities and programs on them), plus $5 for shipping and handling.

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1. Set these modem and software parameters: 7 data bits, even parity, 1 stop bit, full duplex.
2. Call CompuServe's sales department at (800) 848-8199 (United States and Canada). From other countries, dial CompuServe direct at (614) 457-8650. You can also call CompuServe with your modem. Set your modem as instructed above and dial (800) 346-3247. Press Enter when your modem connects. Type PHONES at the HOST NAME prompt, press Enter, and follow the onscreen prompts to find a local access number.
3. Dial the access number with a modem. When your modem connects to the network, press Ctrl-C to get the system's attention.
4. At the HOST NAME prompt, type CIS and press Enter.
5. At the USER ID prompt, type 177000,5300 and press Enter.
6. At the PASSWORD prompt, type PC/CONTACT and press Enter.
7. At the ENTER AGREEMENT NUMBER prompt, type PCC94 and press Enter.

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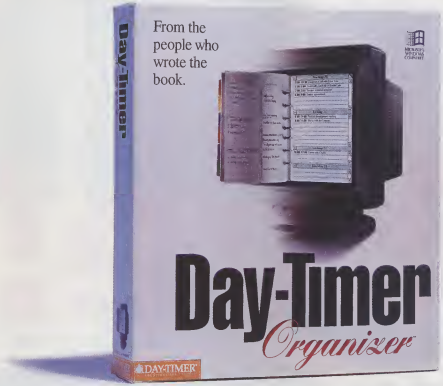

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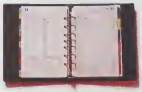

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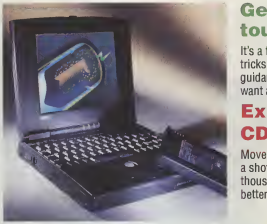

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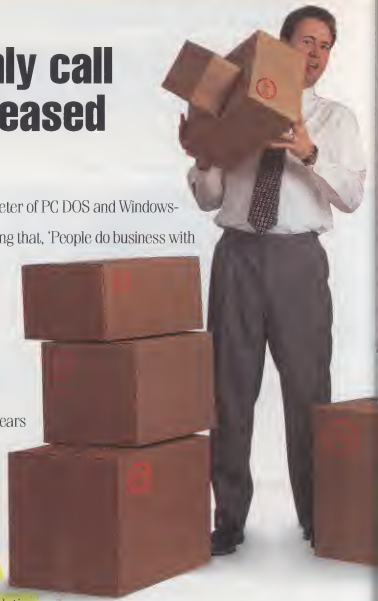

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INVEST IN THE RIGHT SERVER TO AVOID FUTURE GRIDLOCKS

Servers: Give Yourself Room to Grow

When it comes to servers and networks, the magic word is *scalability*. Estimating your network's rate of growth is easy enough. But drawing a bead on what your company's mission-critical applications will be three years hence is far more difficult. This is where server purchases get sticky. E-mail and file sharing, for example, make relatively light demands of a server's CPU. There's no need for high-speed Pentium power if these will be your network's core duties for the foreseeable future. A good 66MHz 486 will serve you well; and you can use the money you save on extra storage or memory. Application sharing, on the other hand, which includes the growing panoply of workgroup software, requires all the processing muscle you can muster. For these you'll want a nimble 66MHz or faster Pentium CPU. Whichever processor you settle on, keep it stoked with an adequate level-2 cache—at least 512K.

More critical to overall network performance is the server's expansion bus. The extra dollars you shell out for an EISA bus will be well spent. If your network serves 20 or fewer clients, you'll want at least 4 EISA slots; with more than 20 clients, get 8 slots.

Equally important to performance is memory. For simple file sharing among 20 or fewer clients, you can get by with as little as 16MB of RAM as long as you can expand it to 128MB. Consider 32MB your starting point for larger networks, expandable to at least 256MB.

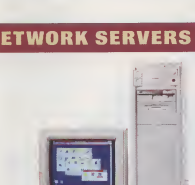
Make sure your server provides at least four full-height 5¼-inch drive bays, two of which feature front-panel access. In addition, you'll want two half-height 3½-inch bays. By the way, even small networks benefit from the performance of a Fast SCSI-2 drive interface.

Finally, don't let performance and expandability overshadow an equally important concern: security. A small server tends to require an external uninterruptible power supply (UPS); on a larger server, this is integrated into the box. And DAT backup makes sense for large networks in which application sharing is key.

MARTY JEROME

NETWORK SERVERS

THE **PENTIUM** IS STANDARD EQUIPMENT FOR MOST SERVERS



USABILITY
1. **BIOS:** Flash for easy upgrades.
2. **Enclosure:** Tool-free removal.
3. **CPU Socket:** ZIF.
4. **SIMMs:** Easily accessible.
5. **Drive Bays:** Easily accessible.

FEATURES
1. **CPU Cache:** Expandable to 1MB.
2. **Upgrade Potential:** Pentium upgradable.
3. **Interface:** Wide SCSI-2.
4. **RAID:** Level 3 or 5.
5. **RAM:** Expandable to 128MB.
6. **Bus Slots:** Eight EISA with two VL or PCI.
7. **Internal Bays:** Two full-height 5¼-inch, two 3½-inch.
8. **External Bays:** Two half-height 5¼-inch with front-panel access.
9. **Backup:** DAT.
10. **Network Card:** One 16-bit.
11. **Network Cards:** Two 16-bit.
12. **Protection:** UPS.

DECISION MAKER

1 How big is your network?	2 Primary activity?	3 This is a minimum configuration:	4 Look for these features ...
20 or Fewer Clients	File Storage	66MHz 486DX2, 16MB of RAM, 1GB Hard Disk	**Usability:** 1, 2, 3, 4, 5 **Features:** 2, 5, 6, 7, 9, 10, 12
	Application Services	60MHz Pentium, 16MB RAM, 1GB Hard Disk	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 3, 4, 5, 6, 7, 9, 10, 12
21 Clients or More	File Storage	60MHz Pentium, 32MB RAM, 2GB Hard Disk	**Usability:** 1, 2, 3, 4, 5 **Features:** 2, 3, 4, 5, 6, 7, 8, 9, 11, 12
	Application Services	90MHz Pentium, 64MB RAM, 4GB Hard Disk, RAID Level 5	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 3, 5, 6, 8, 9, 10, 11, 12

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WINDOWS DISPLAYS

CHOOSE THE **RIGHT SIZE** FOR YOUR APPLICATIONS

USABILITY

1. **Controls:** Front panel or onscreen digital.
2. **Power Management:** EPA Energy Star.
3. **Base:** Adjustable tilt and swivel.
4. **Input:** Multiple input sources.
5. **Settings:** Saved for different resolutions.

FEATURES

1. **Emissions:** MPR II.
2. **Tube:** Flat-square or Trinitron.
3. **Controls:** Microprocessor based.
4. **Controls:** Color.
5. **Coating:** Antiglare.
6. **Vertical Refresh:** At least 72Hz.
7. **Vertical Refresh:** At least 76Hz.
8. **Vertical Refresh:** At least 84Hz.

DECISION MAKER

1 What's most important?	2 Primary activity?	3 This is a minimum configuration:	4 Look for these features...
Text & Numbers	Word Processing & E-mail	15-inch, 800-by-600-pixel Resolution, 0.28mm Dot Pitch	**Usability:** 1, 2, 3, 5 **Features:** 1, 2, 3, 5, 6
	Spreadsheet & Database	17-inch, 1,024-by-768-pixel Resolution, 0.28mm Dot Pitch	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 2, 3, 5, 6
Graphics, Design & Multimedia	Presentations Or Drawing	21-inch, 1,280-by-1,024-pixel Resolution, 0.31mm Dot Pitch	**Usability:** 1, 2, 3, 4, 5 **Features:** 1, 2, 3, 4, 5, 7
	CAD or Page Layout	21-inch, 1,600-by-1,200-pixel Resolution, 0.31mm Dot Pitch	**Usability:** 1, 2, 4, 5 **Features:** 1, 2, 4, 5, 8

WINDOWS ACCELERATORS

GET YOURSELF A **VESA OR PCI** BUS CARD

USABILITY

1. **Software:** For changing resolutions and colors.
2. **Software:** For driver installation.
3. **Extra:** Virtual desktop support.
4. **Jumpers and Switches:** None.

FEATURES

1. **Drivers:** Windows 3.1.
2. **Memory:** Expandable to 2MB.
3. **Memory:** Expandable to 4MB.
4. **Memory:** Expandable to 6MB.
5. **Vertical Refresh:** 72Hz or higher at all resolutions.
6. **Number of Colors:** 64,000.
7. **Number of Colors:** 16.7 million (true color).
8. **Feature Connector:** VESA advanced feature connector (VAFC) or VESA media channel (VMC) feature connector.
9. **3D Support:** OpenGL.
10. **Resolution:** 1,600-by-1,280 pixels at 16.7 million colors.
11. **VRAM:** 2MB minimum.
12. **VRAM:** 4MB minimum.

DECISION MAKER

1 What's most important?	2 Primary activity?	3 This is a minimum configuration:	4 Look for these features...
Text & Numbers	Word Processing & E-mail	800-by-600-pixel Resolution at256 Colors	**Usability:** 1, 2, 4 **Features:** 1, 2, 5
	Spreadsheets & Databases	1,024-by-768-pixel Resolution at 256 Colors	**Usability:** 1, 2, 3, 4 **Features:** 1, 3, 5, 6, 11
Graphics	Design & Multimedia	1,024-by-768-pixel Resolution, 64-bit Accelerator	**Usability:** 1, 2, 4 **Features:** 1, 2, 4, 8, 9, 10, 12
	CAD or Image Editing	1,280-by-1,024-pixel Resolution, 64-bit Accelerator	**Usability:** 1, 2, 3, 4 **Features:** 1, 2, 3, 8, 9 to 12

SPEC WATCH: Don't Settle for Less than These Specs

SCANNERS

COLOR OR GRAYSCALE, LOOK FOR **TWAIN COMPLIANCE**

USABILITY

1. **Image Merging:** Automatic.
2. **Image Straightening:** Automatic.
3. **Software:** For TSR monitoring.
4. **Controls:** Manual for contrast and brightness, automatic for balance and tonality.

FEATURES

1. **Controls:** Color calibration.
2. **Software:** 24-bit editing software.
3. **Interface:** Parallel port.
4. **Interface:** PC Card.
5. **Document Feeder:** Automatic.
6. **Adapter:** Transparency.
7. **Software:** OCR bundle.
8. **Interface:** SCSI or SCSI-2.
9. **Image:** Black-and-white.
10. **Image:** 24-bit color (256 shades).
11. **Image:** 24-bit grayscale (256 shades).
12. **Other:** TWAIN compliant.

DECISION MAKER

1 What's most important?	2 Primary activity?	3 This is a minimum configuration	4 Look for these features...
Text	Snippets	Hand-held or Single-page, 200 dpi	Usability: 1, 3 Features: 3, 4, 7, 8, 12
	Multiple Pages	Flatbed, 300 dpi	Usability: 2, 3 Features: 5, 7, 8, 11, 12
Graphics	Simple Graphics	Flatbed, 400 dpi	Usability: 2, 4 Features: [illegible]
	Photos	Flatbed, 600 dpi	Usability: 2, 4 Features: [illegible]

DISK DRIVES

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USABILITY

1. **Documentation:** Includes a clear jumper-setting diagram.
2. **Diagnostic Software:** Included.
3. **Partitioning Software:** Included.
4. **Power Management:** Included.

FEATURES

1. **Cache or Buffer:** 256K or larger.
2. **Access Time:** 13ms or faster (if measured as seek time, 10ms or faster).
3. **Interface:** Enhanced IDE.
4. **Interface:** Wide or Fast SCSI-2.
5. **Warranty:** Three years, all parts and labor.
6. **Warranty:** Five years, all parts and labor.
7. **Extra:** RAID-capable.

DECISION MAKER

1 Where will you use it?	2 In which environment	3 This is a minimum configuration	4 Look for these features...
Desktop	Windows	340MB IDE	Usability: 1, 4 Features: 2, 3, 5
	Windows NT & OS/2	500MB SCSI-2	Usability: 1, 2, 4 Features: 1, 2, 4, 6
Network Server	20 or Fewer Workstations	1GB SCSI-2	Usability: 1, 2, 3, 4 Features: 1, 2, 4, 5, 7
	More than 20 Workstations	2GB SCSI-2	Usability: 1, 2, 3, 4 Features: 1, 2, 4, 5, 7

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	16MB	$769
PowerExec 3/25SL, 3/25SL-C, EL	4MB	$179
Premium Exec 286, 386SX/20, 25, 25C	4MB	$149
NEW Bravo NB 486	4MB	$205
	16MB	$839

Compaq

NEW Aero	4MB	$219
	8MB	$399
NEW Concerto 486	4MB	$209
	8MB	$399
Contera 3/20, 3/25, 3/25c	4MB	$175
	8MB	$325
Contura 4/25 series	4MB	$189
	8MB	$365
LTE 3865/20	4MB	$229
NEW LTE Elite	8MB	$449
LTE Lite 20; 25; 25c, 25e	4MB	$229
	8MB	$395
	16MB	$789
LTE Lite 4/25c	4MB	$219
	8MB	$399

IBM

NEW PS/2 CL57SX and ThinkPad 700, 700c, 720, 720c, 75S	4MB	$209
	8MB	$389
	16MB	$1059
NEW ThinkPad 710T	4MB	$189
	8MB	$319
NS1 Notebook (All)	2MB	$99
	4MB	$189
L40SX, N33SX, PS/Note 182	4MB	$181
L40SX, PS/Note 182	8MB	$295

NEC

NEW UltraLite Versa (all models)	4MB	$229
	8MB	$449
(Excluding 40E & 50E models)	16MB (3.3V)	$959
UltraLite III, SL/25C	2MB	$79
	4MB	$169
UltraLite SL/20, SL/20P	2MB	$79
	6MB	$259
ProSpeed 286, 386SX/16	4MB	$179

Texas Instruments

TravelMate 3000 (all models)	2MB	$79
NEW TravelMate 4000 (all models)	4MB	$189
	16MB	$1,599

Toshiba

T1000SE/LE/XE; 2000, 2000SX; SXe, T1200XE, 1600, 3100E	2MB	$99
	2MB	$89
T2200SX, T1800 Series	4MB	$169
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	4MB	$149
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	8MB	$399
	16MB	$935
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	16MB	$699
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	16MB (3.3V)	$959
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Zenith

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	8MB	$384
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MastersPort 3865X	2MB	$89
NEW Z-Star	4MB	$229
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PERSONAL COMPUTER MEMORY

AST

NEW Premmio
4MB 501159 001 ... $152 8MB 501159-002 .. $369
Bravo 3/25s
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Advantagel 386SX/20; 25, Advantagel Pro SX/25, Brave 3/33s
2MB 500962-001 $89 8MB 500962 002 $289
Advantagel Pra 486DX/33; SX/25, Bravo LC 4/25s; 33; 33s; 50d; 4/66d
2MB 500987-001 $72 4MB 500987 002 . $159
Premiam 386/25; 33; 33T, Premiam II 386SX/16; 20; 25
1MB 500780 003, 002 $47
Advantagel 486/25; 33; 33p; SX20, Brave 4/33; 486/25; Premium 4/25; 33TE, Server SE 4/33
2MB 500718 004, 780-005 $69
Advantagel 486/25; 33; 33p; SX20, Power Premium 3/33, 4/33; 33s; 50d; 66d, Premium 386/33TE, 486/25; E; 25TE; 33; 33E; 33TE, Premium II 386/25; 33, 486/33, 486SX/20 Premiam Server SE 4/33
4MB 500780 004 $179 8MB 500780-001 .. $358

Compaq

ProLiaea 3/25s; 3/25zs
2MB 141738 001 $89 8MB 141742 001 . $319
NEW ProLinea 4/25s, 4/33, 4/50
1MB 141682-001 $39 2MB 141683-001 .. . $85
4MB 141684-001 $181 8MB 141685 001 . $354
DeskPre 386-20, 25
4MB 113132 001 .. $180 4MB 113645 001 . $244
DeskPra 386s/16
4MB 112534-001 $180 4MB 113634 001 . $255
NEW DeskPra 3/25i; 33i, 4/25iS; 33i; 66i, 286N; 386N; 386SX/20; 20N, SystemPro LT Series, Partoble 486c, M Series
2MB 118689-001 $85
4MB 118690-001 $181 8MB 112877-001 .. $354
PraSignim PC Server 486/33; DX2/66
16MB 149320 001 $649
DeskPra 386-33, 486-33, SystemPra
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Dell

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Vectre 386/33N; 33NI
2MB 02714A $92 8MB 02715A $310

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2MB 92F9935 . $82
4MB 92F9694 $168
PS/1 Consultant, Essential, Expert models x43, x44, PS/Valuepoint all models except Cxx series
4MB 96F9290 $199
PS/1 Caesaltant, Essential, Expert models x76
16MB Kit 96F9291 $639
PS/2 25/286, 30/286, memory adapter 1497259
2MB Kit 30F5360 .. $81
PS/2 35SX; LS, 40SX, 50Z, 55SX; LS, 65SX; LS, 70, XStation
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Optima 14,400 Fax/Modem, Internal/External .. $387/$390
Optima 14,400 Fax/Modem Pocket External . $307
Accura 28 8bps Fax/Modem, External $271
Optima 28 8bps Fax/Modem, Internal/External $382/$435

US Robotics

Worldport 14,400 fax, PCMCIA $199
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Cx486SRx²-20/40 ... $226

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2MB 334448 $110 4MB 334458 ... $195
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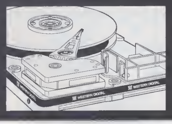

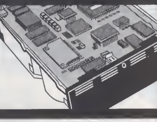

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Run on floppy controller. 1 FREE tape. Save $10 w/ drive sale.

Capacity	Brand	Warranty	Internal	External
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420MB	CONNER	2yr	$195	$339
850MB	CONNER	2yr	$289	$429

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IDE			
210MB	14ms	CFS210A	$165
420MB	14ms	CFS420A	$205
850MB	10ms	CNR850A	$419
1275MB	9ms	CNR1275A	$539

Maxtor

IDE			
170MB	15ms	7171A	$150
540MB	12ms	7546A	$265

MICROPOLIS

IDE			
1050MB	10ms	MC4110A	$570
1740MB	10ms	MC2217A	$889
SCSI			
1052MB	8.5ms	MC4110	$570
1740MB	10ms	MC2217	$889
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4294MB	8ms	MC3243AV	$2359
9100MB	12ms	MC1991AV	$3499

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341MB	13ms	ST3391A	$193
420MB	14ms	ST3491A	$205
545MB	12ms	ST5660A	$259
722MB	12ms	ST3780A	$375
1083MB	12ms	ST31220A	$495
SCSI (WIDE SCSI also available)			
1052MB	9ms	ST31200N	$579
1700MB	9ms	ST11900N	$1019
2145MB	8ms	ST12550N	$1219
2148MB	9ms	ST12400N	$1090
4290MB	9ms	ST15230N	$1889
4290MB	8ms	ST15150N	$2199
9080MB	11ms	ST410800N	$3459

HARD DRIVES

Quantum

IDE			
270MB	12ms	LPS270A	$175
342MB	12ms	LPS340A	$199
541MB	12ms	LPS540A	$252
SCSI			
170MB	14ms	ELS170S	$175
270MB	12ms	LPS270S	$189
342MB	12ms	LPS340S	$215
541MB	12ms	LPS540S	$265
1080MB	10ms	IMP1080	$579
1440MB	9.5ms	IMP1440S	$749
2160MB	9.5ms	IMP2160S	$999

IBM

IDE			
364MB	12ms	70G8488	$199
527MB	12ms	70G8486	$259
728MB	12ms	70G8511	$379
1052MB	8.6ms	70G8512	$619
SCSI (WIDE SCSI also available)			
364MB	12ms	94G2440	$229
527MB	12ms	94G2441	$289
728MB	12ms	94G2422	$449
1052MB	8.6ms	70G8492	$659
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270MB	SQ3270S	$429	$549	$489
IDE		Drive w/ 1 disk	PC Kit	Portable
105MB	SQ3105A	$219	$255	$359
270MB	SQ3270A	$399	$435	$559

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44MB 66/61/57 88MB 70/66/64 105MB 56/54/53
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Toshiba	XM3501	4X	120ms	$389
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Toshiba	XM3401	2X	200ms	$258
Teac	CD50	2X	265ms	$209
Sanyo	SH93R	2X	280ms	$165

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SCSI Drive, sound card (in retail pkg)
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SB= Sound Blaster 16 SCSI. SA= Sound Blaster SCSI ASP.

	PREM	PRO	SB	SA
SH93R	$289	$409	$289	$349
CD50	$359	$485	$359	$425
XM3401	$425	$549	$425	$479
CDR510	$449	$569	$449	$499
XM3501	$569	$689	$569	$629
PX43CH	$599	$729	$599	$669

CONTROLLER CARDS

ADAPTEC	Alone	w/Drive
A1522BASIC 16Bit SCSI	$139	$109
A1542CBASIC 16Bit SCSI	$239	$215
A2742 EISA SCSI	$359	$349
A2842 VESA SCSI	$259	$249
A2940Kit PCI SCSI	$299	$289
Future Domain 1680 16Bit SCSI	$139	$119
QLOGIC PCI SCSI & WIDE	$325	$309
PCI 4IDE, incl. CD ROM & FAST ATA	$59	$49
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S425I 16Bit IDE	$99	$89
S475I 32Bit Local Bus IDE	$129	$119
S485I 32Bit PCI IDE	$229	$219
SCSI Controllers include COREL SCSI		
S425S 16Bit SCSI	$229	$219
S475S 32Bit Local Bus SCSI	$369	$359
GSI 16Bit IDE accelerators (enhanced IDE) BOOST PERFORMANCE 30 to 80%!		
1533-21 2IDE, 4 Floppy	$65	$55
1533-32 2IDE, 4 Floppy, IO	$129	$109
4C 16Bit supports 8 IDE	$139	$119
MaxIDEA software accelerator	$34	$25

Many other types of controllers in stock.

SCSI TAPE DRIVES

Kit includes 16bit card, DOS or Windows software & 1 tape.

			Bare	Kit
250MB	Conner	C2150	$349	$549
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580MB	Teac	MT01F	$399	$599
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2Gig	Conner	4320	$749	$889
2Gig	HP	35470	$829	$969
NEW DRIVE! Back-up speed 54MB/min				
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4-16Gig	Conner	4326	$969	$1139
4-16Gig	HP	C1533A	$1129	$1279
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Novell NLM 50 user / unlimited $229/$389
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	128MB	230MB	1.3Gig
Internal upgrade	$639	$769	$1899
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Portable for PC	$869	$1029	$2149

Other configurations available.

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Multiple CD ROM drives in a single external enclosure. Great for networks, BBS, or business.

	2 Drive	4 Drive	7 Drive
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NEC 3X	$699	$1449	$2449
Toshiba 3501	$999	$2099	$3579
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AcerNote™ 780cx IntelDX4/75MHz

NEW 500MB Hard Disk

Here's the ultimate gift for fast-moving executives. It's got a powerful processor that outperforms some desktops. With its ultra-large hard disk, storing color graphics, entire presentations, or voluminous data files is no problem. And its battery saving features help it stay on the job, even when you're putting in long hours on the road.

- IntelDX4/75MHz processor with built-in 16KB cache and coprocessor
- 8MB system RAM
- SmartCase™ easy-to-open modular housing for easy upgrades and serviceability
- 9.5" active-matrix LCD displays 256 colors
- Easy-to-remove keyboard for quick memory and BIOS upgrade
- EasyTrac™ centrally located removable trackball
- 2 PCMCIA Type II slots/1 Type III slot
- 1.44MB diskette drive
- Local bus accelerated graphics
- Suspend-to-Disk feature, "No-Reboot" CMOS setup and Suspend-Resume hot button preserve battery life
- Easily upgradable 500MB 2.5" hard drive
- Simultaneous LCD/CRT display
- Slim 8.66" x 11.4" x 2.1" case weighs 6.4 lbs, including NiMH battery pack
- Graphic battery gauge indicates remaining battery life
- One-year 24-hour "Hot Swap" Warranty in U.S. and Canada

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Desktop Power To Go

AcerPower™ puts up to twice the power of a desktop system in a notebook computer. With the lightning-fast IntelDX4 processor running at 75MHz, your productivity will reach new heights. After all, if you're busy enough to need a notebook, you sure don't have time to sit and watch the hourglass.

PCMCIA Gives You Easy Communication

Credit card-sized PCMCIA cards slide into any AcerNote, adding more memory, and let you tap into your network, send information to a fax machine via modem, access additional storage devices or transfer data between your laptop and office desktop. PCMCIA cards also make great stocking-stuffers!

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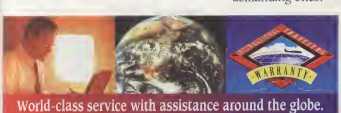
Count On Dependability With The Industry Source, Acer

Many of the leading notebooks are manufactured by Acer—now you can have the confidence that comes from using the industry source.



World-class service with assistance around the globe.

Modularity For Your Notebook

Convenient, upgradable architecture has arrived with the AcerNote 780cx. It features a revolutionary modular design that makes upgrading components and servicing easy. That's important, because when you're traveling with your notebook, your system administrator won't be around to help you.

Expandability For Tomorrow, Power For Today

The AcerNote 760 series gives you all the expandability of the 780cx, plus more power than many current desktop PCs. The high performance of the Intel 486DX2/50MHz processor, combined with local bus architecture, gives you the power to take all your projects on the road with you, not just the less-demanding ones.

AcerNote Gives You Easy Upgrades!

You also get the same convenient, upgradable architecture in the AcerNote 760 series as in the powerful 780cx. A revolutionary modular design makes upgrading components and servicing easy. If you're on the road and need more storage or memory, you can simply plug in off-the-shelf components yourself.

AcerNote 760c i486DX2 /50MHz

NEW

- i486DX2/50MHz processor with built-in 8KB cache
- 4MB system RAM
- SmartCase easy-to-open modular housing for upgradability and serviceability
- Easily upgradable 340MB 2.5" hard drive
- Easy-to-remove keyboard for quick memory and BIOS upgrade
- EasyTrac centrally located removable trackball
- 2 PCMCIA Type II slots/1 Type III slot
- 1.44MB diskette drive
- Local bus accelerated graphics
- Suspend-to-Disk feature, "No-Reboot" CMOS setup and Suspend-Resume hot button preserve battery life
- 9.5" dual-scan LCD Displays up to 256 Colors
- Simultaneous LCD/CRT display
- Slim 8.66" x 11.4" x 2.1" case weighs 6.3 lbs, including NiMH
- Graphic battery gauge indicates remaining battery life
- One-year 24-hour "Hot Swap" Warranty in U.S. and Canada

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AcerNote 760cx i486DX2/50MHz
The Presentation Performer

- i486DX2/50MHz Processor with Built-In 8KB Cache
- 4MB System RAM
- 2 PCMCIA Type II Slots/1 Type III Slot
- 9.5" Active-Matrix LCD Displays 256 Colors
- 340MB 2.5" Hard Disk Drive
- Palmrest with Integrated Trackball
- 1.44MB Diskette Drive
- Local Bus Accelerated Graphics
- MS-DOS 6.2, Microsoft Windows 3.1
- International Travelers Warranty
- 24-hour "Hot Swap" Warranty in U.S. and Canada

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AcerNote 735c 486SX/33MHz
The Value Winner For Presentations

- Intel SL-Enhanced 486SX/33MHz Processor
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- 9.5" Dual-Scan LCD Color Displays up to 256 Colors
- 209MB 2.5" Hard Disk Drive
- Palmrest with Integrated Trackball
- 1.44MB Diskette Drive
- Local Bus Accelerated Graphics
- MS-DOS 6.2, Microsoft Windows 3.1
- International Travelers Warranty
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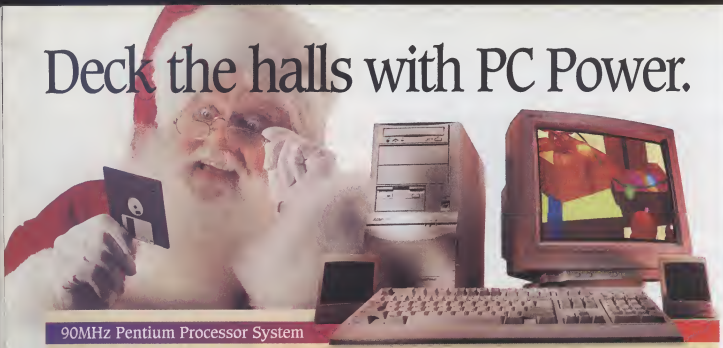

90MHz Pentium Processor System

This mid-priced AcerPower model makes a perfect family gift because it offers the ultimate in price/performance. And as soon as it's out of the box, it'll provide hours of multimedia fun and discovery. All the capabilities are built-in: a Sound Blaster™-compatible sound card, stereo speakers, double-speed CD-ROM drive and an extra value-added bundle of the most popular CD-ROM software available today.

- Intel Pentium/90MHz Processor
- 8MB System RAM (Expandable to 128MB)
- 256K Second-Level Cache
- 540MB IDE Fast Hard Disk Drive
- PCI Enhanced Local Bus IDE
- Double-Speed CD-ROM Drive
- 15" .28 Noninterlaced Flat Screen Digital SVGA Color Monitor
- 1MB 64-Bit PCI Nitro Windows Accelerator Card
- 1.44MB Diskette Drive
- 2 PCI 64-Bit Expansion Slots
- 4 ISA 16-Bit Expansion Slots
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intel inside pentium processor

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A Powerful Choice For Home Or Office

A desktop system for your home or small office would be nice, but the price has to be right, and it's got to have some computing power. Now, just in time for the holidays, comes the AcerPower series of desktop and minitower PCs. They're out-of-the-box performers that leave as much room for future expansion as they leave leftover cash in your gift fund.

An AcerPower For Every Price Range

AcerPower™ incorporates a full range of systems from value-priced desktop models to higher-end, super-powered minitowers that admirably serve the most power-hungry business applications. And there's a price point that can provide even the biggest Scrooge with a basic system that can be expanded as business grows and resources allow. Start with an i486DX2/66MHz processor-equipped AcerPower built for productivity. Or opt for a Pentium-powered desktop tower that tears through number-crunching and multitasking jobs with ease.

Expandability Built-In!

All AcerPower models feature twin PCI expansion slots, 4 ISA 16-bit slots, and a combo PCI/ISA expansion slot. So, you can easily add your choice of productivity-enhancing peripherals, or respond to new technologies without changing your basic computing platform.

Join the Pentium multimedia revolution.

AcerPower Pentium/60MHz

- Intel Pentium/60MHz Processor
- 8MB System RAM (Expandable to 128MB)
- 256K Second-Level Cache
- 540MB IDE Fast Hard Disk Drive
- PCI Enhanced Local Bus IDE
- Double-Speed CD-ROM Drive
- 15" .28 Noninterlaced Flat Screen Digital SVGA Color Monitor
- 1MB 64-Bit PCI Nitro Windows Accelerator Card
- 1.44MB Diskette Drive
- 2 PCI 64-Bit Expansion Slots
- 4 ISA 16-Bit Expansion Slots
- 1 Combination PCI/ISA Slot
- 16-Bit Sound Blaster-Compatible Sound Card
- Super Multimedia Software Bundle
- Microsoft Windows for Workgroups, MS-DOS 6.2, Productivity/Entertainment Packs, Works for Windows, and Quicken

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Sight! Sound! Performance!

AcerPower i486DX2/66MHz

- i486DX2/66MHz Processor
- 8MB System RAM (Expandable to 128MB)
- 256K Second-Level Cache
- 540MB IDE Fast Hard Disk Drive
- PCI Enhanced Local Bus IDE
- Double-Speed CD-ROM Drive
- 15" .28 Noninterlaced Flat Screen Digital SVGA Color Monitor
- 1MB 64-Bit PCI Nitro Windows Accelerator Card
- 1.44MB Diskette Drive
- 2 PCI 64-Bit Expansion Slots
- 4 ISA 16-Bit Expansion Slots
- 1 Combination PCI/ISA Slot
- 16-Bit Sound Blaster-Compatible Sound Card
- Super Multimedia Software Bundle
- Microsoft Windows for Workgroups, MS-DOS 6.2, Productivity/Entertainment Packs, Works for Windows, and Quicken

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Great For Game-Players!

AcerAcros™ 486/66MHz

- Intel 486/66MHz Processor
- 4MB System RAM (Expandable to 128MB)
- 256K Second-Level Cache
- 540MB IDE Fast Hard Disk Drive
- Enhanced Local Bus IDE
- Double-Speed CD-ROM Drive
- 14" .28 Noninterlaced SVGA Color Monitor
- 32-Bit Local Bus Video
- 1.44MB Diskette Drive
- 2 PCI 64-Bit Expansion Slots
- 4 ISA 16-Bit Expansion Slots
- 1 Combination PCI/ISA Slot
- 16-Bit Sound Blaster-Compatible Sound Card
- Super Multimedia Software Bundle
- Microsoft Windows for Workgroups, MS-DOS 6.2, Productivity/Entertainment Packs, Works for Windows, and Quicken

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Make It A Multimedia Holiday Season!

An Acer multimedia PC is the gift the whole family will use, long after the last gift is unwrapped. With interactive sight and sound, multimedia PCs hold children's interest with fun, exciting games and educational software that gives them an edge at school. And, since Acer multimedia PCs come complete with Productivity Software packages, they help Mom and Dad do the household finances or even open up a modern home office. Acer Multimedia PCs: truly a great gift for the whole family!

AcerPower Pentium/90MHz
The Ultimate Power Package

- Intel Pentium/90MHz Processor
- 16MB System RAM (Expandable to 128MB)
- 256K Second-Level Cache
- 1GB IDE Fast Hard Disk Drive
- PCI Enhanced Local Bus IDE
- **Quad-Speed CD-ROM Drive**
- 17" .28 Noninterlaced Flat Screen Digital SVGA Color Monitor
- 2MB 64-Bit PCI ATI Mach 64 Windows Accelerator Card
- 1.44MB Diskette Drive
- 2 PCI 64-Bit Expansion Slots
- 4 ISA 16-Bit Expansion Slots
- 1 Combination PCI/ISA Slot
- 16-Bit Sound Blaster-Compatible Sound Card
- Super Multimedia Software Bundle
- Microsoft Windows for Workgroups, MS-DOS 6.2, Productivity/Entertainment Packs, Works for Windows, and Quicken

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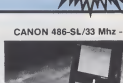

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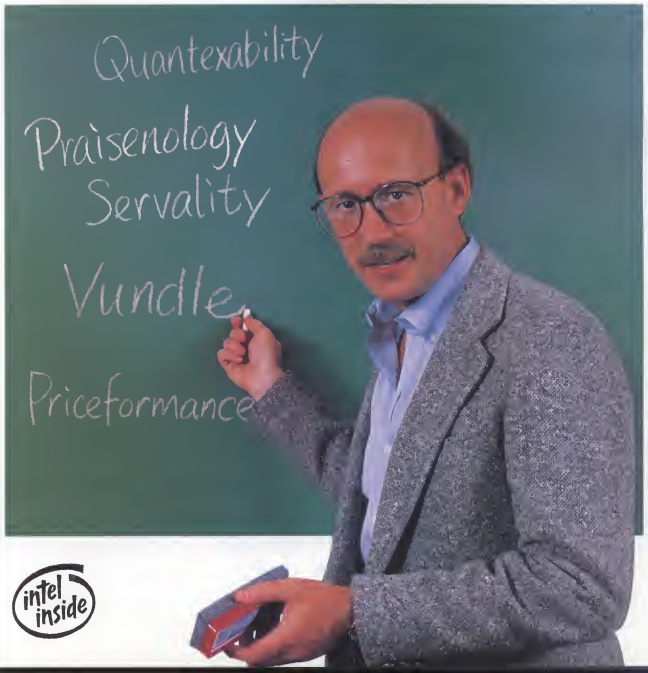

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System pictured with tower case and 17" monitor

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PC WORLD OCT. 94

PC WORLD DEC. 94

COMPUTER SHOPPER

"The Quantex QP5/90PM-2 is as close to a turnkey multi-media PC as any machine we've seen." (11/94)
Feature Story (8/94)

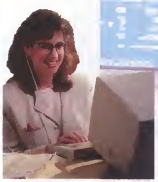
PCComputing

"★★★★" (7/94)

PC WORLD

Best Buy Top 20 Power Desktops
(10/94, 12/94)

"Servality"



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VERSA V/98C 340MB	$3799
VERSA V/50C 540MB	$4239
VERSA M/750 250MB	$3749
VERSA M/750 340MB	$3829
VERSA M/75C 340MB	$4533
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VERSA M/75CP 340MB	$5299

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T1910/1910CS 200MB	$1459/*1499
T1960CS 200 MB	$2349
T1960CS 340 MB	$2599
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T2400CT 250MB	$3589
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T4700CT 200MB/320MB	$4439/*4769
T4800CT 500MB	$5489
T4900 Pentium	$5499

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Modular architecture for a multitude of user-upgradable features.

- User upgradable processor, memory, hard drive, display and more
- 4MB RAM exp. to 24MB
- 32-bit VL local bus video
- Detachable video display
- Built-in 16-bit stereo sound with speaker and microphone
- Integrated trackball
- Two Type II or one Type III PCMCIA slots
- MS-DOS, Windows for Workgroups, Indeo Video
- 2-Year Warranty

Processor	RAM	Screen	Hard Drive	Price
486SX/33	4MB	10.4" mono	200MB	$2449
486DX2/50	4MB	10.3" dual scan	200MB	$2869
486DX2/50	4MB	10.3" dual scan	340MB	$3149
486DX2/50	4MB	9.5" active	340MB	$4339
486DX2/50	8MB	9.5" active	450MB	$4759
486DX4/75	8MB	9.5" active	520MB	$5339

as low as $2449

ZENITH DATA SYSTEMS

Z-NOTEFLEX ACCESSORIES

ZEXDOCK port replicator	$219.99
ZEXBAY floppy bay/battery recharger	$159.99
ZEXSHOW Multimedia Companion	$799.99
ZEXSITE LCD Display Stand	$199.99

Z-STAR EX

High-end features at a low-end price!

- Cyrix 486DX2/50 processor
- 4MB RAM expandable to 20MB
- Modular design with removable hard drive & floppy drive
- 32-bit VESA local bus graphics, 512KB video RAM
- Two Type II or one Type III PCMCIA slot
- Modem/audio module slot
- Enhanced J-Mouse pointing device
- Built-in AC adapter
- MS DOS, Windows 3.1 and CoSession Host software
- 1-Year Z-CARE on-site service

Processor	RAM	Screen	Hard Drive	Price
486DX2/50	4MB	9.5" monochrome	200MB	$1699
486DX2/50	4MB	9.5" dual scan	200MB	$2179
486DX2/50	8MB	9.5" dual scan	340MB	$2549
486DX2/50	4MB	9.5" active matrix	340MB	$3309

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A complete portable multimedia solution for any PCMCIA notebook!

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- PCMCIA Type II interface included
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Contura 400

- 486DX2/40 processor
- 4MB RAM expandable to 20MB
- 2 Type II or 1 Type III PCMCIA slots
- Large built-in trackball
- MS-DOS, Windows 3.1, Tabworks, Lotus Organizer

Display	Hard Drive	Price
Dual Scan	250MB	$2459
Active	250MB	$3119

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ProLinea Desktops

- 4MB RAM expandable to 100MB
- 3.5" floppy drive
- Local bus graphics
- Pentium upgradable
- Energy Star compliant
- MS-DOS 6.0, Windows 3.1

Processor	RAM	Hard Drive*	Price*
486SX/33	4MB	200MB	$1049
486SX/50	4MB	200MB	$1169
486DX2/66	4MB	340MB	$1489
486DX2/66	4MB	525MB	$1639
486DX4/100	8MB	340MB	$1999
486DX4/100	8MB	525MB	$2139

**COMPAQ color monitors start at $298.99*

LTE Elite

- 486 processor
- 4/8MB RAM exp. to 20/24MB
- Built-in AC adapter
- Removable hard drive
- 2 Type II or 1 Type III PCMCIA slots
- Integrated trackball
- MS-DOS 6.0, Windows 3.1, MS Video for Windows Runtime

Processor	Display	Hard Drive	Price
486DX2/40	9.5" dual	170MB	$3119
486DX2/40	9.4" active	170MB	$3279
486DX2/40	8.4" active	340MB	$4159
486DX2/50	9.5" mono	250MB	$3299
486DX2/50	9.5" active	340MB	$4699
486DX4/75	9.5" active	340MB	$5669
486DX4/75	9.5" active	510MB	$6139

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Hewlett Packard

DeskJet/DeskWriter 540

- Sharp, 600 x 300 dpi "laser-like" print quality with REt
- 15% faster printing with 512KB RAM
- 3-Year Warranty

DeskJet 540	$289.99
DeskWriter 540	$289.99

DeskJet/DeskWriter 560C

- Color 600 x 300 dpi "laser-like" print quality
- Resolution Enhancement Technology for smooth, crisp text and graphics
- 3-Year Warranty

DeskJet 560C	$479.99
DeskWriter 560C	$479.99

DeskJet/DeskWriter 320

- High-quality 3 PPM printing
- 600x300dpi with REt
- 1-Year Warranty

DeskJet 320	$299.99
DeskWriter 320	$299.99

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DeskJet 320 with sheet feeder

DeskJet 1200C

- Sharp, 600x300dpi "laser-like" print-quality with ColorSmart
- 2MB memory expandable to 26MB
- 180 sheet paper tray
- 1-Year Warranty

DeskJet 1200C	$1349.99

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- ▲ 10.4" active matrix color display
- ▲ 1 Type II and 1 Type III PCMCIA slots
- ▲ Accupoint integrated pointing device
- ▲ MS-DOS 6.22, Windows for Workgroups 3.11, Windows Sound System 2.0, Indeo Video, and Runtime Video for Windows

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MULTI MEDIA READY

T4700 and T4800

- ▲ 8MB RAM, expandable to 24MB
- ▲ Brilliant 9.5" display with local bus video
- ▲ 2 PCMCIA slots (Type II, Type III)
- ▲ Microsoft Sound System, built-in microphone, audio out port
- ▲ MS-DOS, UltraFont, Indeo video compression software, Windows for Workgroups 3.11

Model	Processor	Screen	Hard Drive	Pri
T4700	486DX2/50	9.5" Active	200MB	$45
T4700	486DX2/50	9.5" Active	320MB	$48
T4800	486DX4/75	9.5" Active	500MB	$55

Lease for $166/mo.

T4800

Satellite Notebooks

- ▲ 4MB RAM expandable to 20MB
- ▲ 9.5" display
- ▲ 1 Type III (T1900), 1 Type II and 1 Type III (T2400) PCMCIA slot
- ▲ 82-key keyboard
- ▲ MS-DOS, Windows 3.1
- ▲ Ballpoint mouse with Quickport (T1900)
- ▲ Accupoint pointing device (T2400)
- ▲ Enhanced power management

Model	Processor	Screen	Hard Drive	Price
T1910	486SX/33	9.5" Mono	200MB	$1499
T1910	486SX/33	9.5" Dual scan	200MB	$2039
T1960	486DX2/50	9.5" Dual scan	200MB	$2379
T1960	486DX2/50	9.5" Dual scan	320MB	$2629
T1960	486DX2/50	8.4" Active	200MB	$3029
T1960	486DX2/50	8.4" Active	320MB	$3259
T2400	486DX2/50	9.5" Dual Scan	250MB	$2929
T2400	486DX2/50	9.5" Dual Scan	320MB	$3089
T2400	486DX2/50	8.4" Active	250MB	$3639
T2400	486DX2/50	8.4" Active	320MB	$3799

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T3400

- ▲ Ultra-portability at only 4.1 lbs.
- ▲ 486SX/33 or 486DX2/50 processor
- ▲ 4MB RAM expandable to 20MB
- ▲ PCMCIA Type II slot
- ▲ External 3.5" disk drive
- ▲ Integrated AccuPoint pointing device

Processor	Screen	Hard Drive	Price
486SX/33	7.8" Active	250MB	$2899
486DX2/50	8.4" Active	250MB	$4069

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T3400

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Ascentia 900N 10.4" Active Matrix screen now available!

Ascentia 900N

- ▲ 486DX2/50 or 486DX4/75 processor
- ▲ 4MB/8MB RAM exp. to 32MB
- ▲ Large dual scan or Active color display
- ▲ PCMCIA type III slot

Model	Screen	Hard Drive	Price
4/50 Model 343W	10.3" Dual scan	340MB	$2719
4/50 Model 343W	9.5" Active	340MB	$4149
4/75 Model 343W	10.3" Dual scan	340MB	$3219
4/75 Model 513W	10.4" Active	510MB	$5029

Lease for $83/mo.

Ascentia 900N

Ascentia 800N

- ▲ 486SX/33 or DX2/50 processor
- ▲ 4MB RAM expandable to 20MB
- ▲ 9.5" dual scan color display
- ▲ PCMCIA Type III slot

Model	Hard Drive	Price
4/33s Model 253W	250MB	$2099
4/33s Model 343W	340MB	$2259
4/50d Model 253W	250MB	$2349
4/50d Model 343W	340MB	$2499

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- ▲ Available in All-N-One, Desktop, or Minitower models
- ▲ Double speed IDE CD-ROM drive
- ▲ 16-Bit Creative Labs Soundblaster
- ▲ 14.4 Send/Receive Fax modem w/telephone answering
- ▲ Over 17 software titles
- ▲ 3-Year Warranty

Processor	Hard Drive	Price*
486DX2/50	540MB	$1349
486DX2/66	420MB	$1499
486DX2/66	420MB	$1589
Pentium 60MHz	540MB	$1999

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**AST Color Monitors start at $369.99*

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Transform your TravelMate 4000M into the Ultimate Mobile Multimedia System with the TravelMate CD-ROM docking system.

- ▲ Double-speed CD-ROM drive
- ▲ 250ms access time
- ▲ Built-in speakers
- ▲ SCSI II connector

$819.99*

TravelMate 4000M

- ▲ Brilliant color display
- ▲ 16-bit sound card
- ▲ Integrated Pointing device
- ▲ PCMCIA Type III slot

Processor	Screen	Hard Drive	Price
486SL/25	8.2" Enhanced Color	120MB	$1879
486DX2/50	9.5" Dual Scan	200MB	$2759
486SX/50	8.4" Active	340MB	$3099
486DX4/75	9.5" Dual Scan	455MB	$4439
486DX4/75	8.4" Active	340MB	$4189

TravelMate Intelligent Docking System

- ▲ 6 16-bit ISA slots
- ▲ 2 PCMCIA Type III slots
- ▲ 2 3.5" and 2 5.25" drive bays
- ▲ Auto Load/Eject feature

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TravelMate 4000E Color

Processor	Screen	Price
486SX/25*	8.2" Enhanced Color	$1699
486DX2/40	8.2" Enhanced Color	$2069
486DX2/50	9.4" Dual Scan	$2319
486DX2/50	8.4" Active Matrix	$2819
486DX4/75	8.4" Active Matrix	$3549
486DX4/75	9.5" Active Matrix	$3999

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TM 4000M

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ThinkPad® 360 Notebooks

- ▲ 486SL/33 processor
- ▲ 4MB RAM exp. to 20MB
- ▲ Modular design, removable hard drive & floppy drive
- ▲ Local bus graphics with 1MB video RAM
- ▲ 2 Type II or 1 Type III PCMCIA slot
- ▲ TrackPoint II integrated pointing device
- ▲ IBM DOS 6.3, Windows 3.1, Lotus cc:Mail, Organizer, ScreenCam, Official Airline Guide FlightDisk, CoSessions Host, Prodigy, America Online, and FaxWorks 3.0
- ▲ Port Replicator and Docking Station available

Screen	Hard Drive	Price
9.5" Monochrome	170MB	$1839
9.5" Monochrome	340MB	$2229
9.5" Dual Scan	170MB	$2279
9.5" Dual Scan	340MB	$2659
8.4" Active Color	170MB	$2719
8.4" Active Color	340MB	$3099

Pen models also available

as low as $1839

ThinkPad® 510 Subnotebook

- ▲ IBM 486BL2/50 processor
- ▲ 4MB RAM exp. to 20MB
- ▲ 200MB hard drive
- ▲ 7.7" color display
- ▲ Type II PCMCIA slot
- ▲ TrackPoint II integrated pointing device
- ▲ 3.5" external floppy drive
- ▲ Weighs only 3.8 lbs. (w/battery)
- ▲ IBM DOS 6.3, Windows 3.1, Lotus cc:Mail, Organizer, ScreenCam, Official Airline Guide FlightDisk, CoSessions Host, Prodigy, America Online, and FaxWorks 3.0

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ThinkPad 360E notebooks with DX2/50 processors & larger hard drives and IBM PC 300 desktops with PCMCIA slots. *CALL for information.*

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Versa M

- ▲ 486DX4/75 or 486DX4/100 processor
- ▲ 2 Type II or 1 Type III PCMCIA slots
- ▲ Removable hard drive
- ▲ Removable screen
- ▲ Integrated speaker, microphone
- ▲ MS-DOS, Windows 3.1, Windows Sound System, Video for Windows Run Time

Processor	Hard Drive	Screen	Price
486DX4/75	340MB	Dual Scan Color	$3899
486DX4/75	540MB	Active Matrix Color	$5199
486DX4/100	810MB	Active Matrix Color	$6049
486DX4/75	540MB	Enhanced Active	$5579
486DX4/100	810MB	Enhanced Active	$6429
486DX4/75	340MB	True Color Active	$5099

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Ready Multimedia Desktops

- ▲ 486 processor
- ▲ VESA local bus graphics
- ▲ NEC CD-ROM drive
- ▲ SoundBlaster 16 sound card
- ▲ Speakers, microphone
- ▲ 24/96 fax modem
- ▲ MS-DOS, Windows, Quicken
- ▲ CD titles: Compton's Encyclopedia, PFS Window Works

MULTI MEDIA READY

Processor	Hard Drive	Price*
486SX/33 desktop	270MB	$1299
486DX2/66 desktop	340MB	$1539
486DX2/66 minitower	420MB	$1639

Lease for $50/mo.

*Monitors priced separately

Ask about the new series of XE and XP monitors!

PCC 12/94

Versa V

- ▲ 486DX2/50
- ▲ 4MB expandable to 20MB
- ▲ 2 Type II PCMCIA slots
- ▲ MS-DOS 6.2, Windows 3.1, built-in trackball
- ▲ Removable hard drive
- ▲ Removable floppy – add second battery

Screen	Hard Drive	Price
9.5" Dual Scan	250MB	$2839
9.5" Active	250MB	$3619
9.5" Active	340MB	$3799
9.5" Active	540MB	$4279

Lease for $104/mo.

Versa S

- ▲ 486 processor
- ▲ 9.5" screen
- ▲ SurePoint integrated pointing device
- ▲ 2 Type II PCMCIA slots
- ▲ Only 4 lbs.

Processor	Screen	Hard Drive	Price
486SX/33	9.5" Mono	210MB	$1699
486SX/33	9.5" Dual Scan	210MB	$1889
486SX/33	9.5" Active	210MB	$2839
486DX2/50	9.5" Active	260MB	$3299

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Now you can watch TV or use video on your notebook with the TV Module – with NTSC/PAL input or composite video input.

Thanks to Sager's new CD-ROM & Local-Bus notebooks, the days of the desktop are definitely numbered.

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- Intel Pentium or 486 CPU

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- 256KB Secondary Cache Memory
- 8MB RAM Expandable to 40MB
- 16-bit Stereo Audio with Speaker & Microphone
- 1 16550 Compatible Serial Port
- 1 Parallel Port with ECP/EPP Support

486
- 4MB RAM Expandable to 36MB
- Built-In Audio Chip with Speaker & Microphone
- 1 Serial & 1 Parallel Port

- 1MB Video RAM
- 32-bit VESA Local Bus Video with Windows Accelerator
- 32-bit Local Bus IDE
- Removeable 340MB Hard Drive (250, 520, 810MB Optional)
- 3 5" 1 44MB Floppy Drive
- 9 5" Mono, 10 3" Dual Scan, 9 5" Or 10,4" Active Matrix VGA Display CRT, 1024x768, 256 Colors
- Simultaneous CRT & LCD Operation
- Large Built-In 19mm Trackball
- Intelligent Power Management with SMM
- 2 PCMCIA Type I & II or 1 Type III Slot
- Super Long Life NiMH battery
- Other Ports Ext keyboard, Ext VGA monitor, & 200 Pin Connector for docking station
- Jacks - 1 line in & 1 line out
- 86-Key Keyboard
- Microsoft DOS 6 22
- Carrying Bag & AC Adapter
- Weight 6 6lbs (with Battery)
- 11 14"W x 9 48"D x 1 95"H
- Sager's Umbrella Protection Policy

NP7500 OPTIONS

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NP9500

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- 32-bit Local Bus IDE
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- 4MB RAM, Expandable to 64MB
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- Simultaneous CRT & LCD Operation
- Integrated Pointing Device
- Advanced Power Management with SMM
- 4 PCMCIA Type I & II or 2 Type III Slots
- Super Long Life NiMH Battery
- 2 16C550 Compatible Serial Ports
- 1 Parallel Port with ECP/EPP Support
- Other Ports: Game, Ext Keyboard, Ext VGA Monitor, Ext PS/2 & 200 Pin Connector for Docking Station
- Jacks - 1 line-in, 1 line-out & 1 Microphone
- 85-Key Keyboard
- Microsoft DOS 6.22
- Carrying Bag & AC/Adapter
- Weight 7 lbs. with battery
- 11.69"W x 9.06"D x 2.44"H
- Sager's Umbrella Protection Policy

NP9500 OPTIONS

5.25" Double Speed CD-ROM Module
3.5" HDD Module
TV Tuner Module
2nd & 3rd Battery Module
Docking Station
Car Adapter
Numeric Keypad
PCMCIA Cards (FAX/Modem, Ethernet, SCSI & More)

OTHER NP9500 HIGHLIGHTS

- **Advanced Local Bus Video System**
  1MB Video RAM, 32-bit VESA Local Bus Video w/Windows Accelerator, & Multimedia Interface for Live Video
- **32-Bit Local Bus IDE**
  Improves Data Transfer Rate Up To 45%
- **Advanced Audio True-Sound System**
  Built-In 16-Bit Audio, 1 Microphone, 2 Stereo Speakers & Audio Amplifier
- **4 PCMCIA Type II Ports**
  Twice the PCMCIA capability of any other notebook
- **Super-Long Operating Time - Up to 87-Watts of Power**
  Comes standard with one 35 Watt NiMH battery pack, which will give 2.5 hours of operating time, PLUS notebook can handle 2nd & 3rd battery pack modules which will give an additional 35Watts or 17Watts (87Watts total) - which results in up to 6.5+ hours run time
- **Interchangeable Modules**
  Choose from many interchangeable modules that can be used in both the notebook and/or docking station - including 5.1/4" 2x CD-ROM, TV-Tuner, 3.1/2" FDD, 3.1/2" HDD and extra battery modules.

S A G E R S Y S T E M S	9.5" MONO	10.3" COLOR DUAL SCAN	9.5" COLOR ACTIVE MATRIX	10.4" COLOR ACTIVE MATRIX
NP7500/486SX-33	$1575	$2045	$2845	
NP7500/486DX-33	$1645	$2125	$2925	
NP7500/486DX2-66	$1695	$2175	$2975	
NP7500/486DX4-100	$2045	$2525	$3325	
NP7500/PENTIUM-100		$3045	$3845	$4045
NP9500/486SX-33	$1725	$2195	$2995	$3195
NP9500/486DX2-66	$1845	$2325	$3125	$3325
NP9500/486DX4-75	$2095	$2575	$3375	$3575
NP9500/486DX4-100	$2195	$2675	$3475	$3675

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If the equipment does not work as intended, we'll pay your purchase price PLUS all shipping charges both ways!

48-hour Repair Promise.
For the first 30 days, we'll repair or replace your computer within 48-hours and we'll pay 2nd day air shipping charges both ways!

72-hour Repair Promise.
For the rest of the 1-year warranty period, if it takes more than 72-hours to repair you computer, we'll pay 2nd day air shipping charges both ways!

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Whether your business is "at the office" or with your family at home, Amdek can help you and your family display the best of our world's grandeur and dazzling color. Amdek introduced the industry's first PC video monitor in 1978 and has been successfully providing display solutions with crisp, rich images at very competitive prices for over fifteen years. The AM/815E and AM/817E color Amdek monitors meet the stringent Swedish MPR-II low radiation emission guidelines and the VESA DPMS Energy Star power savings standard to help protect you and conserve our world's energy. Amdek "Direct" offers great prices, a 30-day "no questions asked" money back guarantee, toll-free technical support, and a standard one year warranty with available extended warranty programs. Amdek also has special programs for resellers, state and local government, and educational and corporate accounts. You will find that Amdek "Direct" can deliver the best combination of great prices, proven support, and feature rich monitors right to your door! Give us a call today.

MPR II

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	AM/432E	AM/732E+	AM/732NI	AM/815E	AM/817E
Screen Size	14"FS VGA Mono	14" SVGA Color	14" SVGA Color	15"FS SVGA Color	17"FS Hi-Res Color
Max Resolution	640x480	1024x768	1024x768NI	1280x1024NI	1600x1200NI
Max Refresh Rate	70 Hz	70 Hz	90 Hz	90 Hz	105 Hz
Horizontal Scan Freq.	31.5KHz	59KHz - 580Hz	30KHz-57KHz	30KHz-64KHz	24KHz-82KHz
Dot Pitch	N/A	.28mm	.28mm	.28mm	.26mm
110-240 VAC (Auto-sensing)	Yes	Yes	Yes	Yes	Yes
MPR II Compliant	No	No	No	Yes	Yes
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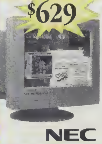

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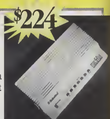

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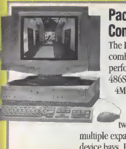

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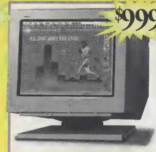

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32Kx8	19 00	9 00	8 00	7 00
32Kx8 (3 3V)	–	–	14 50	–
64Kx1	–	11 00	9 00	8 00
64Kx4	–	11 00	9 00	8 00
16Kx4	–	8 00	7 00	6 00
128Kx8	–	59 00	39 00	29 00

Individual D-RAM Chips

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	50NS	60NS	70NS	80NS	100NS
1Megx1	–	6 85	6 45	5 95	4 95
1Megx4	–	59 00	55 00	54 00	–
1Megx4 (Zip Pk)	–	24 00	22 00	21 00	–
256x4(Page Dip)	–	7 25	6 75	6 50	5 95
256 4(Static Dip)	–	–	9 95	–	–
256x4(Page Zip)	–	9 25	9 00	8 85	–
256x4(Video Zip)	–	–	12 95	11 95	9 95
256x8(SOJ)	–	28 00	24 00	–	–
256 x1	–	3 25	2 95	2 75	2 25
64x4	–	–	–	3 75	–
64x1	–	–	–	–	2 00
256x16 SOJ	–	–	–	–	–
256x16 Video Zip	–	49 00	39 00	–	–

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8087	39 00
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CX486 SRX2 20/40	244 00
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1Meg x 9 (3 chip)	–	48.00	42 50	41 00	40 00	–
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2 x 36 8 mg	–	–	359 00	339 00	339 00	–
4 x 36 16 mg	–	–	609 00	579 00	599 00	–
8 x 36 32 mg	–	–	1239 00	1229 00	–	–
16 x 36 64 mg	–	–	2699 00	2599 00	–	–
1 x 32 4 mg	–	–	164 00	159 00	–	–
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	8Meg	500987-003		330 00
	16Meg	500987-004		619 00
	32Meg	500987-005		1399 00
Premium 486/25 25E 33, 33E				
Premium 386/33TE 486/2STE, 33TE				
Prem Serv Prem II 386SX/20 25				
Prem II 386/25 386/33, 486/33, 486SX/20	8Meg	500780-001	64 pin	398 00
Premium 386/33T Prem 386SX/16				
Prem II 386SX/20, 25	4Meg	500780-004		189 00
Premium 386/25 33 386/33T 386SX/16,	1Meg	500780-003		59 00
Prem II 386SX20 25	1Meg	500780-001		59 00
Premia 4/33S, 4/33, 4/50D 4/66D	8Meg	501159-002		379 00
Premia	16Meg	501159-003		789 00
Premia	32Meg	501159-004		1469 00
Premia	64Meg	501159-005		3111 00
AST Cupid Bd	0–32Meg	500818-001		179 00

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MODEL	AMT. UPGRADED	AST PART #	PRICE
Z386/33, 25, 20, 33E	1Meg	ZA3800ME	59 00
Z386/33, 25, 20, 33E, 486/25E	4Meg	ZA3800MK	180 00
Z386SX	2Meg	Z-605-1 modules	119 00

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6450375 (1Meg)	80-041	79 00
6450379 (2Meg)	80-111 311-121 321, 081, 161	84 00
6451060 (4Meg)	60-A21 A-61, 80-A31, 80 111, 80-311	189 00
6450604/92G7196 (2Meg)	70-061 E61 121 502 55SX, 65SX, P-70, 55LS, 65LS X-Station 120 & 130, 35SX 35LS 40SX	99 00
6450608 (2Meg)	70-A21, A-61 B-21, B-61 35SX, 35LS, 40SX, Val Pt 325T	90 00
78X8955 (128K)	25	35 00
34F2933 (4Meg)	35SX, 40SX, 55SX 65SX, 55LS 65LS	175 00
87F9977/92G7199 (4Meg)	55SX 55LS 65SX, 40SX, 35SX 35LS	175 00
1057035 (512K)	P/S1-286	49 00
92F9935 (2Meg)	P/S1 & P/S1/386SX-2121	109 00
92F9694 (4Meg)	P/S1 & P/S1/386SX Model-2121	189 00
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92G7201, 73G3131 (4Meg)	Value Point Performance PC Server 4/66	175 00
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6450128/32G7200 (4Meg)	57SX, 90 95 P-75 57SLC, 56 56SLC P/S1 386SX, Mod-2123 2133, 2155, Val Pt 77, 486CS2 486SX, SVR85 Value Point 77 486DX2, 486SX SVR 85	175 00
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	8Meg Module	116561-001	399 00
	32Meg Module	116568 001	1399 00
DeskPro 386/33L, 486/33L	(Exp Bd)	116569-001	279 00
DeskPro 386/25 386/20	1Meg Module	113131 001	79 00
	4Meg Module	113132-001	199 00
DeskPro 386S-16MHz	1Meg Exp Bd	113633-001	149 00
	4Meg Exp Bd	113634-001	279 00
	1Meg Module	113646-001	79 00
	4Meg Module	112534-001	199 00
DeskPro 386/20E	1Meg Exp Bd	113644-001	149 00
DeskPro 386/25E	4Meg Exp Bd	113645 001	279 00
	1Meg Module	113131-001	79 00
	4Meg Module	113132-001	199 00
DeskPro 286N, 386N, 386SX20, all "M" series sytem LT series, all "I" series	1Meg Module	118688-001	59 00
	2Meg Module	118689-001	89 00
	4Meg Module	118690-001	169 00
	8Meg Module	128877-001	339 00
M Series Exp Bd	0 64Meg	129160-001	189 00
DeskPro 386/16	1Meg Kit	108071-001	99 00
	4Meg Kit	108072 001	299 00
	1-2Meg Exp Bd	108069-001	239 00
	4-8Meg Exp Bd	108070-001	437 00
DeskPro 286	512K Kit	113012-001	49 00
DeskPro 5/60 5/66M, 5/66M (ALL OF THESE MACHINES USE THESE MODULES)	8Meg Kit	149911-001	389 00
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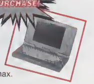

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BJ10SX	244.68	BJ230	388.00
BJ200E	259.44	BJC600 color	499 00

BJC4000 720dpi + color	469.43
LBP430 300dpi 4ppm laser	579 00
LBP680 600dpi 8ppm laser	986.93

EPSON

AP2250	96 55	LQ2550	696 06
AP3250	146.31	DFX5000 Plus	1354 86
AP3260	175.75	DFX8000	2259 45
LX300	165.01	Stylus 300	166.65
FX870	269.46	Stylus 400	198.70
FX1170	359.00	Stylus 800+	209 86
AP5000+	229.71	Stylus Color	509 53
LQ1070+	365.35	ActionLaser 1100	479.90
LQ870	454.44	ActionLaser 1500	595.15
LQ1170	597.99	ActionLaser 1600	934.00

IBM LEXMARK LASER PRINTERS

WinWriter 100 inkjet	267.67
WinWriter 200 laser	478.92
WinWriter 400 laser	756 47
WinWriter 600 laser	999.00
ValueWriter 300 (4037 5E 5PPM)	647.17
ValueWriter 600 laser	615.67
Optra R 600dpi laser	1429.97
ExecJet IIc	327 60
4029-10 10PPM	1115 42
4039-10R 10PPM	1273.46
4039-10RD 10PPM DUPLEX	1586.48
4039 12L PLUS	1859.75
4039 12R PLUS	1394.65
4039 16L PLUS	2685.00

Digital Corporation

DECwriter 500i inkjet	357 00
Color upgrade for 500I	41.00
DEClaser 1152 4 ppm	659.75
DEClaser 5100 8 ppm	1439.86

Panasonic

1150	133.49	2130*	174 40
1624	385.20	2135 Color**	197.43
2023	182.27		

after $30 or $50* mail-in rebate (ends 12/31/94)*

2624	409.49	4400 Laser*	399 69
3123	249.00	5400 Laser**	712.98

after $50 or $100* mail-in rebate (ends 12/31/94)*

TEXAS INSTRUMENTS

microMarc Color inkjet	378.83
microWriter basic	485 61
microWriter PS23	839.65
microLaser Pro 600 PS23	1197.02
microLaser Pro 600 PS65	1524.25
microLaser Pro E	1395 49
microLaser Power Pro 600 PS65	1829.60

HEWLETT PACKARD

DeskJet Portable 310 w/CSF	367.00

DeskJet 500C	305 64	LaserJet 4L	669 56
DeskJet 520	284.10	LaserJet 4P	959 47
DeskJet 540	294.48	LaserJet 4MP	1419 18
DeskJet 560C	479 75	LaserJet 4 plus	1468 35
DeskJet 1200C	1347.91	LaserJet 4M plus	1988 72
DeskJet 1200C PS	2019.22	LaserJet 4Si	2998 95

COSTAR

LabelWriter XL DOS/Win	144 46
LabelWriter XL Plus DOS/Win	224.89

HARD DRIVES & CONTROLLERS

Maxtor

170MB IDE	161.73	345MB IDE	206 04
290MB IDE	183.50	345MB SCSI	236.14

MICROPOLIS

2210A 1050MB IDE	734.97
2210 1050MB SCSI	734.97
4110 1050MB SCSI	669.65
2217 1 7GB SCSI	1036 46
2210AV 1 050GB SCSI AV	798.89
2217AV 1 765GB SCSI AV	1099 22
1936 3GB SCSI	1899.68

CONNER

210MB IDE	177.90	850MB IDE	439 38
425MB IDE	231.43	1080MB IDE	599.91
540MB IDE	302.24		

All Conner drives listed include complete installation hardware and software

Seagate

130MB IDE	187.81	341MB IDE	205.91
200MB IDE	173.14	427MB IDE	224.56
261MB IDE	177 67	1 0GB SCSI-2	656 63

WESTERN DIGITAL

Caviar 210MB IDE	175.17	Caviar 730MB IDE	389 16
Caviar 420MB IDE	223.03	Caviar 1GB IDE	589 79
Caviar 540MB IDE	279.99		

CONTROLLERS

Acculogic IDE W/1PAR, 2SER, 1GAME	35.06
Acculogic IDE W/BIOS	46.90
Acculogic VLB IDE	89.76
Adaptec AVA1505 SCSI-2 CD KIT	54 95
Adaptec 1542CF SCSI-2	265 45
Adaptec 2742AT EISA SCSI-2	339 22
Adaptec 2842 VLB SCSI-2	257.23
Promise IDE ISA Cache	94.50
Promise IDE VLB Cache	115.29
Promise EIDE VLB	58.87

MODEMS & COMMUNICATIONS

U.S. Robotics

SPORTSTER MODEMS

V 34 28 8K internal w/fax	226.14
V.34 28 8K external w/fax	244.32
14 4K internal w/fax	117.50
14 4K external w/fax	137 50
WORLDPORT 14 4K pocket w/fax	226.94

COURIER MODEMS

V 34 internal w/fax	389.79
V.34 external w/fax	427 84

Hayes

ACCURA 14 4 internal w/fax	114 88
ACCURA 14 4 external w/fax	138 69
ACCURA 28 8 V FC internal w/fax	209 02
ACCURA 28 8 V FC external w/fax	258 62
OPTIMA 14 4 external	383 80
OPTIMA 14 4 external w/fax	374.30
OPTIMA 14 4 pocket w/fax	296 93
OPTIMA 28 8 V FC external w/fax	421.54

PRACTICAL PERIPHERALS.

14 4 internal w/fax	107.38
14 4 Mini Tower w/fax	124.60
V FC 28 8 internal w/fax	228 20
V FC 28 8 Mini Tower w/fax	244 26
Practical Pro Series	CALL!

intel

SatisFAXtion 200 internal	209.50
SatisFAXtion 400 Super Fax Pack	298.83
SatisFAXtion 400 external	308 89
14.4 external w/fax While Supplies Last!	109.00

BOCA

14 4 internal w/fax	89 00
14 4 external w/fax	113.61
V.FC 28 8 internal w/fax	185 17
V FC 28 8 external w/fax	216.30

MICROCOM

Deskporte ES 14 4	184.58
Deskporte Fast ES V FC 28 8	179.94
Deskporte Fast EP V FC 28 8	244.30

MOTOROLA

FasTalk II 14.4K internal w/fax	119.78
FasTalk II 14.4K external w/fax	139.84

BATTERY BACKUP AND UPS

American Power Conversion

BackUPS 280	99.53
BackUPS 400	159 94
BackUPS 450	169 99
BackUPS 600	264 24
BackUPS 900	374 68
BackUPS 1250	499 24
SmartUPS 400	299 69
SmartUPS 600	363 38
SmartUPS 900	514.61
SmartUPS 1250	644.24
SurgeArrest Network	34.97
SurgeArrest Pro	33.56
SurgeArrest Network + Phone	48.65
Line-R 600	119.09

Tripp Lite

BC250	99 11
BC400	155 59
BC500	189 42
BC500 LAN	196.65
BC600 LAN	249 00
BC750 LAN	313 90
BC900 LAN	359.67
BC1250 LAN	459.10

Tripp Lite Smart UPS Series

SMART 250 LAN	226.61
SMART 400 LAN	279.22
SMART 500 LAN	288 21
SMART 600 LAN	311.26
SMART 750 LAN	379.86
SMART 900 LAN	439 61
SMART 1250 LAN	579 00
Isobar 4 OUTLET	38 95
Isobar 6 OUTLET	46.36

PCMCIA

3Com Etherlink III combo	246.15
DSP Tech Portable Sound+	154 34
Hayes OPTIMA 14 4 data/fax	169.62
IBM Token Ring 16/4	396 42
Linksys Ethernet combo	167 56
Maxtor MobileMax 105MB HD	326.31
Megahertz 14 4 data/fax	216.70
Megahertz 14 4 Gold data/fax XJack	229.00
Megahertz V 34 XJack	449.88
Motorola 14 4 data/fax w/cellular	319.05
National Semi NE4100T ethernet 10BT	172.96
New Media Bus Toaster SCSI-2 host	229.42
New Media Wave Jammer sound card	252 61
Trantor Slim SCSI-2	256 65
Turtle Beach Audio Advantage	129.36
USR Sportster 14 4K	189 89
USR Sportster V 34	368 67
Xircom Ethernet 10BT	164 71
Xircom Ethernet coax	199 82
Xircom Ethernet combo	233.65
Xircom Token Ring 16/4	449 18

INTEL OVERDRIVE

Intel OverDrive SX2/50	125.56
Intel OverDrive DX2/50	179.92
Intel OverDrive DX2/66	244.37
Intel OverDrive DX4/75	459.29
Intel OverDrive DX4/100	549.89

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AST PowerExec 4/33SL 4MB	CALL!
AST PowerExec 4/33SL 16MB	CALL!
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HP LaserJet 4P 4MB	CALL!
HP LaserJet 4 4MB	CALL!
HP LaserJet 4 8MB	CALL!
IBM ThinkPad 500 4MB	CALL!
IBM ThinkPad 500 8MB	CALL!
IBM ThinkPad 755 4MB	CALL!
IBM ThinkPad 755 8MB	CALL!
Toshiba 1900-4600 4MB	CALL!
Toshiba 1900-4600 8MB	CALL!
Toshiba 1900-4600 16MB	CALL!
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NEC Versa 4MB	CALL!
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T2400CS, 250MB hard drive	**$2877.59**	CDW 43341
T2400CS, 320MB hard drive	**$3039.89**	CDW 45054
T2400CT, 250MB hard drive	**$3597.75**	CDW 43342
T2400CT, 320MB hard drive	**$3768.83**	CDW 43343

T4800CT 75MHz Color Notebook

Unsurpassed performance and superior multimedia capabilities

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◆ SL-enhanced i486SX/33 ◆ 4MB RAM std., 20MB max. ◆ 200MB Hard Drive ◆ monochrome (T1910) or dual-scan color (T1910CS) display ◆ Microsoft BallPoint mouse with QuickPort

T1910	**$1458.68**	CDW 38817
T1910CS	**$1979.98**	CDW 35983

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◆ Carries both notebook and printer, plus accessories ◆ Durable Koskin synthetic leather shell ◆ 2 padded compartments: 13" x 11" x 2.5" ◆ Adjustable padded dividers ◆ Detachable padded shoulder strap ◆ Expanding file and diskette pockets

ONLY! ..... **$69.00** CDW 19486

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◆ Luxurious full grain leather ◆ Padded computer section: 15" x 11" x 2.5" ◆ Large exterior pocket: 13" x 9" x 2" ◆ Detachable padded shoulder strap w/steel fittings ◆ Expanding file with 3 divided sections

ONLY! ..... **$99.00** CDW 27505

Notepac

TOP SELLER!

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ONLY! ..... **$39.00** CDW 29067

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T1960CS, 200MB hard drive	**$2347.57**	CDW 42627
T1960CS, 320MB hard drive	**$2579.96**	CDW 45052
T1960CT, 200MB hard drive	**$2988.92**	CDW 42628
T1960CT, 320MB hard drive	**$3239.44**	CDW 42629

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Please answer questions below:

1. **Where do you use your computer?** (Check one only)
   A ☐ Home B ☐ Business C ☐ Both
2. **What kinds of computers do you use?** (Check all that apply)
   D. ☐ IBM/Compatible Laptop E ☐ IBM/Compatible Desktop F ☐ MAC
3. **Do you plan to buy any of the hardware or software mentioned below in the next three months?** (Check all that apply)

HARDWARE	SOFTWARE	
G ☐ PC	U ☐ Accounting	Y ☐ Communications
H ☐ MAC	R ☐ Spreadsheet	Z ☐ Windows/Multi-tasking
I ☐ Laptop	S ☐ Personal Finance	1 ☐ Programming Language/ Compiler
J. ☐ Printer	T ☐ Desktop Publishing	2 ☐ Integrated/Multifunction
K. ☐ Monitor	U. ☐ Word Processor	3 ☐ CAD
L. ☐ Disk/Tape Back-up	V ☐ Database Manager	
M ☐ Add-in Board	W. ☐ Graphics	
N ☐ Modem	X ☐ Utility	
O. ☐ Input Device		
P. ☐ Local Area Network		

4. **From which of the following sources do you purchase personal computer products?** (Check all that apply)
   4. ☐ Specialty Computer Retail Stores 6 ☐ Direct from Manufacturers
   5. ☐ Mail Order Firms 7 ☐ Other

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826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855
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2. **What kinds of computers do you use?** (Check all that apply):
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3. **Do you plan to buy any of the hardware or software mentioned below in the next three months?** (Check all that apply):

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H. ☐ MAC
I. ☐ Laptop
J. ☐ Printer
K. ☐ Monitor
L. ☐ Disk/Tape Back-up
M. ☐ Add-in Board
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O. ☐ Input Device
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SOFTWARE
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R. ☐ Spreadsheet
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T. ☐ Desktop Publishing
U. ☐ Word Processor
V. ☐ Database Manager
W. ☐ Graphics
X. ☐ Utility
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a. Total No. Copies (Net Press Run)	1,074,396	1,080,320
b. Paid and/or Requested Circulation (1) Sales through Dealers and Carriers, Street Vendors, and Counter Sales (Not mailed)	174,448	172,200
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h. Copies Not Distributed (1) Office use, leftover, spoiled	71,281	90,790
(2) Return from News Agents	148,153	183,235
i. Total (Sum of 15g, 15h(1), and 15h(2))	1,039 044	1,080,320
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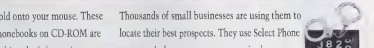

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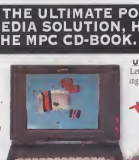

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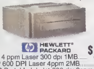

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730MB	IDE	WD27OØA	12ms	3.5" 1"H	329
1080MB	IDE	WD31ØØØA	10ms	3.5" 1"H	469
CONNER					
426MB	IDE	CFS42ØA	14ms	3.5" 1"H	$239
540MB	IDE/SCSI	CFA54ØA/S	10ms	3.5" 1"H	299/309
1060MB	IDE/SCSI	CFP1Ø6ØA/S	9.5ms	3.5" 1"H	599/579
FUJITSU					
530MB	IDE/SCSI	FJ2684A/S	12ms	3.5" 1"H	$229/269
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Maxtor					
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MICROPOLIS					
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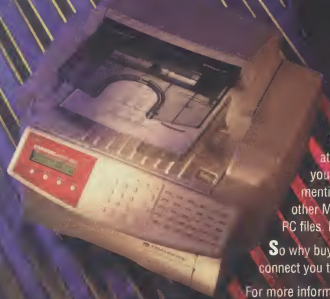

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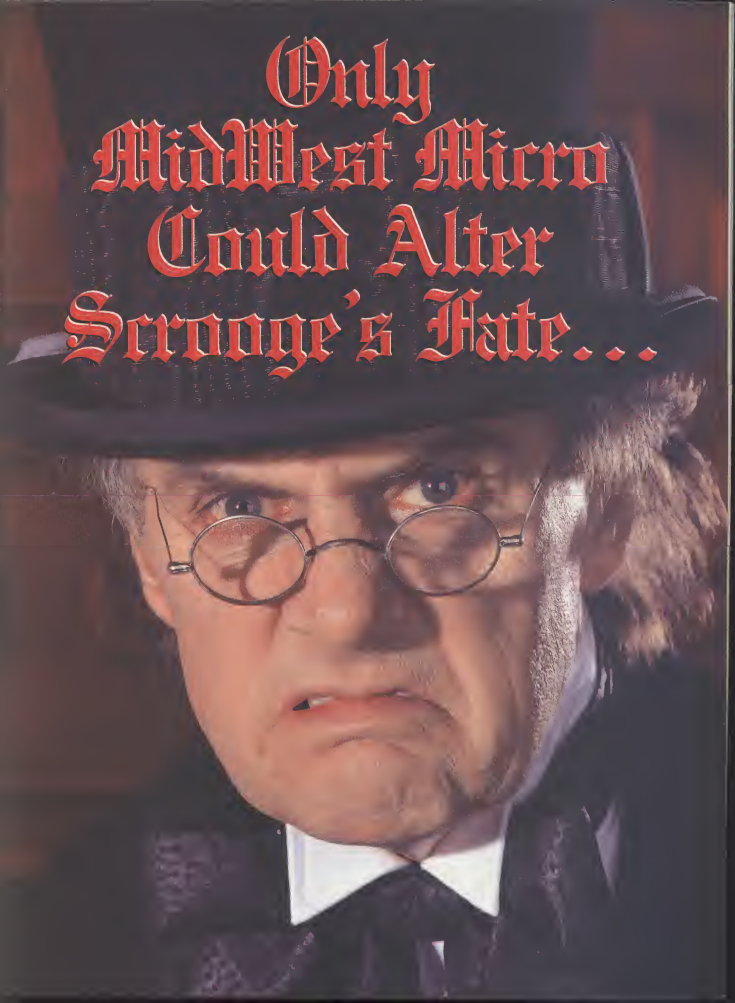
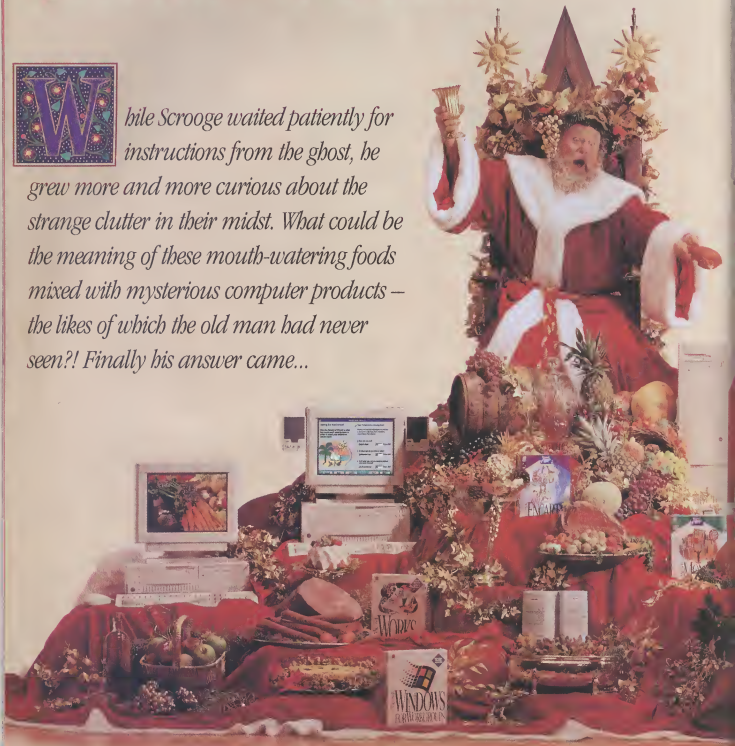

Only
MidWest Micro
Could Alter
Scrooge's Fate...

The Ghost of Computers Present—& Future

While Scrooge waited patiently for instructions from the ghost, he grew more and more curious about the strange clutter in their midst. What could be the meaning of these mouth-watering foods mixed with mysterious computer products – the likes of which the old man had never seen?! Finally his answer came...



"I was sent to deliver the Present and Future of computer technology," the ghost bellowed. "These Intel-based Elite Systems which surround us have captured the extraordinary powers of PCI and Pentium. It is now up to you, Ebenezer, to release them."

The spirit's thundering voice sent chills up Scrooge's brittle spine.

"Please, wise spirit, have mercy upon me. Tell me more about these 'Elites', and what I, a mere mortal, must do to help your cause."

"Many of these fine Elite Systems contain a powerful Intel Pentium Processor," explained the ghost, "capable of 60, 66 or 90 MHz speeds."

Scrooge never dreamed anything could move so quickly.

"While others," he continued, "rely on formidable 486 processors and advanced PCI Local Bus architecture for their impressive performance.

The spirit now turned to the system closest to him, a P5-90 Home PC – and with a single touch, brought its 15" monitor to life.

"Fear not, Scrooge," said the ghost. "Touch the key of your choice, and we shall begin."

Scrooge's trembling index finger came to rest on the symbol that was the dollar sign – in an instant the screen erupted into a multimedia frenzy. Without leaving the room, he saw himself walking about the streets of London – peering into the lives of those less fortunate. He could almost feel the cold air biting his bare feet...smell the aroma of a Christmas goose cooking. He even heard a choir of small children singing.

"Where do these angelic voices come from, spirit?" he asked.

"Altec Lansing Stereo Speakers," said the ghost.

The spirit then explained that it was the combination of a Pentium Processor, superscalar architecture and advanced PCI Local Bus technology that allowed this Elite to access peripherals with such haste.

When the adventure was over the ghost turned off the system and looked down earnestly upon Scrooge.

"These people you have just witnessed hunger desperately for power. Without an Intel-based Elite System in their lives, I shudder to think what may become of them. You must tell them of Pentium and PCI – of MidWest Micro's affordable PCI, Home PC and Pentium Processor Based Systems!"

"You have my word," promised Scrooge.

"And you, Scrooge, do you hunger as well?"

"Yes, spirit. I too could benefit from the power of an Elite."

"No," said the ghost, "I mean are you hungry? I fear I cannot eat all this food without help."

And since Scrooge did not expect another spirit until the bells tolled one, he seated himself with the ghost among the awe-inspiring Elites – and thus began to feast.

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Microsoft WINDOWS FOR WORKGROUPS

AD#M12

Loud and Strong Enough to Break the Chains

rembling at the sight of Jacob Marley's ghost, Ebenezer Scrooge still managed to utter one more "Bah Humbug!" Perhaps it was just a bad chestnut or bite of plum pudding causing him to hallucinate. As he was pondering this, the vision spoke...

"Poor old Ebenezer," his dead partner moaned. "This is neither a dream nor indigestion. I have come to warn you before it's too late – you see, these chains I bear are those I forged in life. And unless you change your way of computing, this will be your fate as well. Like you, I believed a faster, more versatile machine was the key to prosperity. Unfortunately, this obsession with power kept me chained to my office – day in and day out. In my search for the perfect computer, I encountered only a few desktop systems swift enough to suit me – but alas, they were dreadfully heavy. And the portables? Why, I fear my horse-drawn carriage could run faster."

Scrooge nodded in agreement, for he recognized Marley's plight.

"Tell me, Jacob, whatever can I do?" he asked.

"Hold onto your nightcap, Ebenezer – for you will scarcely believe

Yet Ebenezer prayed this spirit spoke the truth. For an invention such as this would surely double his productivity – and thus free him from his dark and gloomy office. Marley then summoned the Elite 486 SoundBook with business audio features and an assortment of delightful screens, rapid processors and generous hard drives to choose from.

"Oh thank you, Jacob," cried Scrooge. "Thank you for delivering these remarkable notebooks from heaven's gates to my humble chambers."

"Heaven, indeed!" laughed the ghost. "Elite SoundBooks are found right here on earth – but only at MidWest Micro.

"Then what about the price?" asked Scrooge. "Notebooks such as these surely cost a full year's wages!"

"Wrong again," said Marley. "MidWest Micro knows you don't want to pay extra pounds any more than you wish to carry them. That's why they offer these lightweight Elites at prices even your employees can afford."

And without another word, the late Jacob Marley was gone...leaving only a puff of smoke and MidWest Micro's toll-free number behind.

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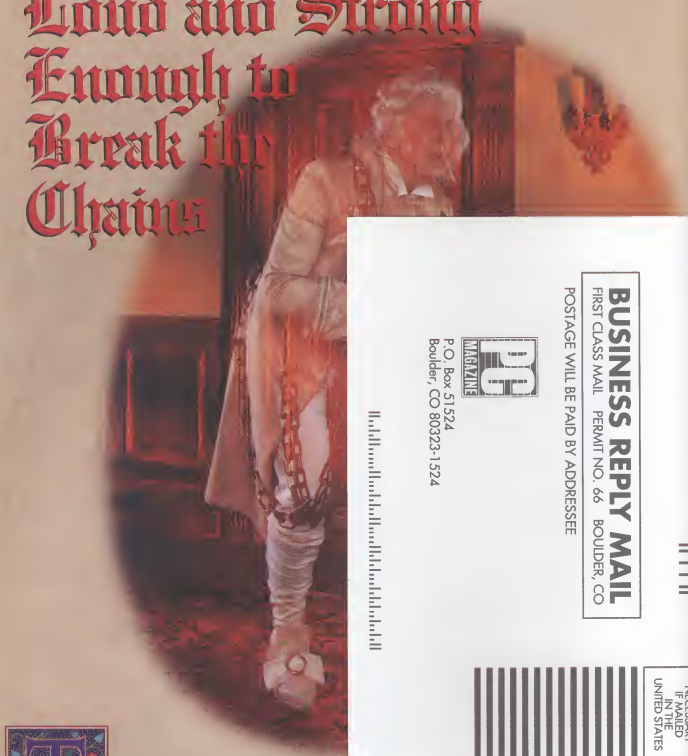

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Scrooge nodded in agreement, for he recognized Marley's plight.

"Tell me, Jacob, whatever can I do?" he asked.

"Hold onto your nightcap, Ebenezer – for you will scarcely believe what you are about to witness."

Scrooge looked closely at the object floating above Marley's wrinkled hands.

"Why, it's just another notebook," he said.

"No," shrieked Marley, "this is the Elite SoundBook Plus based on Intel's Pentium Processor. It's like no other notebook you've ever seen...or heard!"

"And it dares to challenge my full-size computer?" asked Scrooge in amazement.

"Did my words escape you, old man?! The Elite SoundBook Plus has captured the power of Pentium! Couple that with its remarkable PCI Local Bus architecture, high-speed synchronous cache and 16-bit stereo sound– and this 90 MHz notebook more than 'challenges' your cumbersome computer... it clearly outperforms it!"

"But a portable Pentium?!" gasped Scrooge. "A talking 90 MHz notebook?! It's pure humbug I tell you."

Yet Ebenezer prayed this spirit spoke the truth. For an invention such as this would surely double his productivity – and thus free him from his dark and gloomy office. Marley then summoned the Elite 486 SoundBook with business audio features and an assortment of delightful screens, rapid processors and generous hard drives to choose from.

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- Built-in Stereo Speakers & Microphone
- External Jacks for Line In & Line Out
- 3.5" Built-in Disk Drive
- User Replaceable Hard Drive
- Two Type II/One Type III PCMCIA Slot
- Built-in Track Point Style Pointing Device
- NiMH Battery & AC Adapter
- Advanced Power Management
- Bi-directional EPP/ECP Parallel Port
- High Speed 16550 UART Serial Port
- Infra Red Wireless "IR" Interface
- External VGA & keyboard/Mouse Port
- MS-DOS 6.22™ & WFW™ 3.11
- Microsoft Works™ for Windows 3.0
- Lotus Organizer™
- Weight: 6.8 lbs.
- Carrying Case
- One Year Manufacturer's Warranty

Dual-Scan Color Pentium SoundBook

P5-90 with 340 Mb HDD
#008029 **$3599**

P5-90 with 520 Mb HDD
#008025 **$3799**

P5-90 with 720 Mb HDD
#008026 **$3999**

Active-Matrix Color Pentium SoundBook

P5-90 with 520 Mb HDD & 16 Mb of RAM
#008027 **$5499**

P5-90 with 720 Mb HDD & 24 Mb of RAM
#008028 **$5999**

intel inside pentium

intel inside pentium

Elite SoundBook

- Intel 486, DX2 or DX4 Processor
- 4 Mb RAM (expands to 20 Mb)
- 9.5" Mono, 10.5" Dual-Scan or 9.5" Active-Matrix VGA Display
- Local Bus Video with 1 Mb Video DRAM
- Business Audio Features Including: Built-in Microphone & Speaker External Jacks for Line In & Line Out
- 3.5" Built-in Disk Drive
- User Replaceable Hard Drive
- Two Type II/One Type III PCMCIA Slot
- Built-in Trackball
- NiMH Battery & AC Adapter
- Advanced Power Management
- One Parallel & One Serial Port
- External VGA & Keyboard Port
- MS-DOS 6.22 & WFW 3.11
- Microsoft Works for Windows 3.0
- Lotus Organizer
- Weight: Mono – 6.2 lbs. Color – 6.7 lbs.
- Carrying Case
- One Year Manufacturer's Warranty

Dual-Scan Color SoundBook

486SX-33 with 260 Mb HDD
#008065 **$1999**

DX2-50 with 340 Mb HDD
#008066 **$2099**

DX2-66 with 520 Mb HDD & 8 Mb of RAM
#008067 **$2499**

DX4-75 with 520 Mb HDD & 8 Mb of RAM
#008068 **$2699**

DX4-100 with 520 Mb HDD & 12 Mb of RAM
#008070 **$2999**

DX4-100 with 700 Mb HDD, 12 Mb of RAM, PCMCIA 14.4 S/R Fax Modem
#008069 **$3199**

DX4-100 with 700 Mb HDD, 20 Mb of RAM, PCMCIA 14.4 S/R Fax Modem
#008071 **$3699**

Active-Matrix SoundBook

DX2-66 with 340 Mb HDD
#008077 **$2999**

DX4-75 with 520 Mb HDD & 8 Mb of RAM
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DX4-100 with 520 Mb HDD & 12 Mb of RAM
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Monochrome SoundBook

486SX-33 with 260 Mb HDD
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#008073 **$1499**

DX2-66 with 520 Mb HDD
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DX4-100 with 700 Mb HDD & 8 Mb of RAM
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Car Adapter	#005979	$ 59
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Maxtor

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MICROPOLIS

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MC2217A	1626MB	10MB	SCSI	$898
MC2217AV	1690MB	10MS	SCSI	$978
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T1200 XE	4MB	PA8306U	$98
T1600	4MB	PA8302U	$98
T2000 SXE/T2200SX/T1800 T1850 C	4MB	PA2000U	$78
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	8MB	PA2002U	$358
T3100	2MB	PA7135E	$138
T3100 E	4MB	PA8341U	$108
T3100 SX	4MB	PA8308U	$108
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T3200 SX	4MB	PA8307U	$118
	4MB	PA8309U	$198
T3200 SXC	2MB	PA8318U	$108
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T3200	3MB	PA7137U	$184
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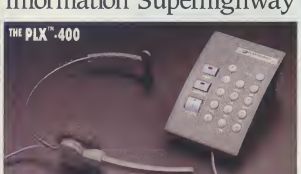

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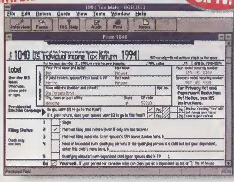

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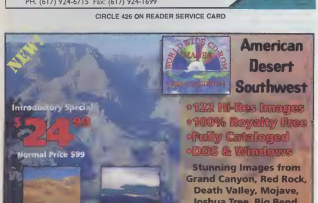

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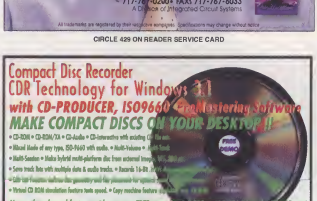

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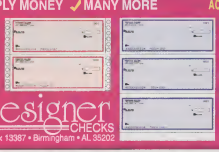

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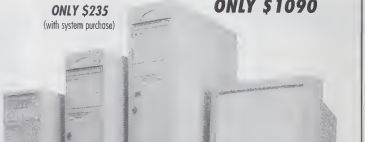

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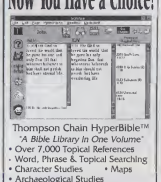

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PHOTOGRAPHS BY FENIE FRIEDLANDER

Are Hung Round the Chimney with Care—So Rip 'Em Open and Plug In!

Hosted by a woolly mammoth, David Macaulay's best-selling book, **The Way Things Work,** works even better as a CD-ROM.

Turn Grandma into Sharon Stone for less than a hundred bucks. **Morph 2.5** mixes scanned photos for shape-changing AVI files.

Get those creative juices flowing. Learn to draw with Walter Foster's tutorial in **Fractal Design Dabbler**—and use the bundled **Kurta PenMouse** to do it.

For a silent night of gaming, try the photorealistic time-travel adventure **The Journeyman Project Turbo.**

It's the season of sharing, of unbridled excitement at opening gifts, of leaving piles of wrapping paper behind to begin playing. Kids are into it, too. There's something about cracking the shrink-wrap on a new box of software that brings back the thrill of gift orgies of yesteryear. But instead of making you huddle around festive symbols in the family room, this crop of goodies has you rushing off to your PC and flipping the power on. In other words, let the seasonal bit blasting begin!

DeskJet 320 / Hewlett-Packard / (800) 752-0900 / $379 est. street price / *Reader Service No. 826*

Dilbert Screen Saver / Delrina Corp. / (800) 268-6082 / $49.99 est. street price / *Reader Service No. 827*

Doom II: Hell on Earth / id Software / (800) 434-2637 / $49.95 est. street price / *Reader Service No. 828*

The Far Side Screen Saver / Delrina Corp. / (800) 268-6082 / $49.99 est. street price / *Reader Service No. 829*

Fractal Design Dabbler/ Kurta PenMouse / Kurta Corp. / (800) 445-8762 / $169 est. street price / *Reader Service No. 830*

Intel DX4 Upgrade Chip / Intel Corp. / (800) 538-3373 / $599 est. street price / *Reader Service No. 831*

The Journeyman Project Turbo / Sanctuary Woods Multimedia / (415) 574-5525 / $49.95 est. street price / *Reader Service No. 832*

Morph 2.5 / Gryphon Software / (800) 795-0981 / $99 est. street price / *Reader Service No. 833*

MultiSpin 3Xp Plus / NEC Technologies / (800) 632-4636 / $415 est. street price / *Reader Service No. 834*

The Simpsons Screen Saver / Berkeley Systems / (800) 877-5535 / $30 est. street price / *Reader Service No. 835*

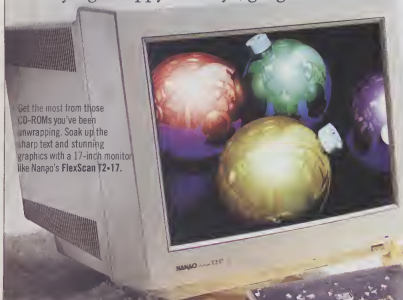
The Way Things Work / DK Multimedia / (212) 213-4800 / $99 est. street price / *Reader Service No. 836*

WingMan Extreme / Logitech / (800) 231-7717 / $49 est. street price / *Reader Service No. 837*

BY MATTHEW LAKE

The Season's Serious **Loot**

You don't want the wonks in your life to sweat the big stuff, so make room under the tree for some serious toys. If it's got a circuit board and a hefty price tag, that's just another way of saying "Happy holidays, gadget fiend" to a wirehead dear to you.



Get the most from those CD-ROMs you've been unwrapping. Soak up the sharp text and stunning graphics with a 17-inch monitor like Nanao's **FlexScan T2•17**.

Have to produce a business report over the holidays? HP's **LaserJet 4P** will get you out of the den quickly and reunited with the family.

Not only is the **Oxford English Dictionary** CD-ROM $2,000 less than the 20-book printed version, it's a lot lighter. What more could a word nerd want?

Everyone's getting CD-ROM titles this season, right? So let's nix the two-hand shuffle for good and load six-packs into the **Pioneer DRM-602X** dual-speed CD-ROM drive.

Now everyone wants copies of the family smiling at each other. All right, crank up Epson's **Stylus Color Ink Jet Printer 720** and start duplicating.

(Or at Least Until You Succumb to Upgrade Fever)

Even six months after its introduction, Dell's **Dimension XPS P90** is still a great gift to yourself . . . er, someone close to you. Yeah, that's it.

Prove you can one-up those CD-ROM makers by rolling your own titles with the **Pinnacle Micro RCD-202** drive.

You'll call Mom to thank her for BellSouth's **Simon**, which combines a cellular phone, fax, pager, and e-mail in a backlit touch-screen PDA.

Want to e-mail holiday snapshots to Grandpa? The **Canon IX-4015** color scanner turns Polaroids into PCXs.

If wrapping all these gifts makes your wrists ache, treat yourself to Lexmark's **Select-Ease Keyboard.** It even doubles as a bridge for that train set.

The stockings are lying empty by the fireside, depleted by ravening hordes of technophiles. The goodies that kept them busy for ten minutes have been stacked next to the PC. (But they'll return to them for hours of enjoyment after they've satisfied their primal urge to tear paper off more boxes.)

The gift-grabbers are now in search of bigger fare. And here it is: bigger boxes with bigger price tags. These high-profile gifts tell the person on the receiving end just how much you care. (And these pictures are good to circle and leave lying on the coffee table until someone gets the hint.) In the season of goodwill and good deeds, a cutting-edge gift is what brings out that extra bit (or byte) of joy.

Canon IX-4015 / Canon Computer Systems / (800) 848-4123 / $999 est. street price / *Reader Service No. 838*

Dimension XPS P90 / Dell Computer Corp. / (800) 289-3355 / $4,187 est. street price / *Reader Service No. 839*

FlexScan T2-17 / Nanao U.S.A. Corp. / (800) 800-5202 / $2,199 est. street price / *Reader Service No. 840*

LaserJet 4P / Hewlett-Packard / (800) 752-0900 / $1,229 est. street price / *Reader Service No. 841*

Oxford English Dictionary / Oxford University Press / (800) 451-7556 / $895 est. street price / *Reader Service No. 842*

Pinnacle Micro RCD-202 / Pinnacle Micro / (800) 553-7070 / $2,695 est. street price / *Reader Service No. 843*

Pioneer DRM-602X / Pioneer New Media Technology / (800) 444-6784 / $1,100 est. street price / *Reader Service No. 844*

Select-Ease Keyboard / Lexmark / (800) 358-5635 / $179 est. street price / *Reader Service No. 845*

Simon / BellSouth Cellular Corp. / (800) 746-6672 / $899 est. street price / *Reader Service No. 846*

Stylus Color Ink Jet Printer 720 / Epson America / 800-289-3776 / $699 est. street price / *Reader Service No. 847*

Techno Holidays

Forget Fruitcake . . . Bring Something Useful

The Holidays at **Home**

A house is not a home without the right kind of fittings and fixtures. It needs a little something for everyone to benefit from and enjoy. That means better, faster, and more unique goods that fit a wide range of ages and tastes.

Micrografx's **Crayola Art Studio** and **Amazing Art Adventure** unite kids, art, technology, and real wax crayons . . . a winning combo.

Design a new place with **myHouse for Windows,** then walk through it with the built-in Movie Maker.

Corner the relatives after dinner and pump them for facts. Then collate the birthdays and photos in **Family Tree Maker.**

Planning a garden for your home? **LandDesigner Multi-Media for Gardens** tells you what to do—in words, movies, and pictures.

Want some peace and quiet? Give the kids Microsoft Home's **Creative Writer** CD-ROM and the first sentence of a story.

Most of the year, work has been taking the lion's share of your attention, while home life has taken the backseat. But now's the time to get those priorities back in order, and your PC is the engine of change.

There's the physical layout of your house to consider—creating a better home and garden through intelligent programming. Then there are the people inside of it—stretching the minds of your kids (or nephews and nieces or neighborhood urchins). And finally, there's the history behind it—tracing your heritage (including scanned pictures, home movies, and voice clips) in a family tree.

Whatever your focus, here's what you need: a decent PC, a good-sized dollop of time, and a CD-ROM drive. Like most everything this year, the best are being pressed on silver platters. The CD-ROM versions of the gardening, creative writing, and art programs give you more bang for your buck, with a half-gigabyte of storage filled with extra goodies. Although myHouse remains tied to floppies, it still provides an economical way to save on architectural fees.

Amazing Art Adventure / Micrografx / (800) 653-3510 / $49.95 est. street price / *Reader Service No. 848*

Crayola Art Studio / Micrografx / (800) 653-3510 / $49.95 est. street price / *Reader Service No. 849*

Creative Writer / Microsoft Home / (800) 426-9400 / $49.95 est. street price / *Reader Service No. 850*

Family Tree Maker / Banner Blue Software / (510) 794-6850 / $60 est. street price / *Reader Service No. 851*

LandDesigner Multi-Media for Gardens / Green Thumb Software / (800) 336-3127 / $49.95 est. street price / *Reader Service No. 852*

myHouse for Windows / DesignWare / (800) 536-2596 / $49 est. street price / *Reader Service No. 853*

The Complete Multimedia Software Gift Guide

Your personal guide to buying software for your home computer

INSIDE:

Sifting through multimedia software choices

Gift ideas for friends with home computers

Special offers from Microsoft, Compaq and Delta Air Lines

WITH THEIR NEW RAZZLE AND DAZZLE, COMPUTERS ARE DANCING OFF THE ACCOUNTANTS' DESKTOPS AND FINDING A WELCOME SPOT IN FAMILY ROOMS ACROSS THE NATION.

Ten years ago, computers simply slapped numbers onto the screen, dutifully balancing checkbooks and analyzing mortgage rates —certainly not the most enchanting activities. ▪▪▪ Today's computers are still balancing checkbooks and analyzing mortgage rates—in fact, they've gotten better at it than ever. But they've also learned to relax a little. They're playing back Charlie Parker licks, letting the kids create animated cartoons, and even showing video clips of Charlton Heston's chariot race in Ben-Hur. ▪▪▪ The key is multimedia, a word that simply means being able to communicate in several different ways. Today's new multimedia PCs are mixing sound, photos and video along with their usual repertoire of text and numbers to create software that's more engaging than ever. ▪▪▪ For example, the Microsoft Encarta™ multimedia encyclopedia not only lets you read about the moon, it lets you view a color photo of astronaut Buzz Aldrin, listen to Neil Armstrong's famous "One small step for man" speech, and watch an animation depicting the moon's orbit. ▪▪▪ The extra energy's certainly catching on. Take a few minutes to discover the world of opportunities multimedia computing offers. In the next few pages, you'll find a variety of exciting new software titles built especially for multimedia enjoyment. They make great gifts for your friends, family — and you!

Multimedia Software: *A World of Experience*

Ever see those old 1940s movies where the whole household hovered around the radio listening to evening shows? Even back then, technology helped bring people together. The radio is eventually headed for a shelf in the garage, pushed aside by television technology. After all, it's only natural to want to watch the action, rather than merely listen to it.

Multimedia software can take you anywhere in the world, at any time — all from the comfort of your home computer. It's a sort of quick vacation — without travel agents and airports. Plus with multimedia computers becoming popular in more and more households, multimedia software becoming an excellent gift — a fun way to give a friend or family member exactly what they like

Just For The Kids

Today, computers are as natural to kids as ice cream. They're using them in schools, libraries, and at friends' houses. A lot of multimedia software is designed specifically for the younger generation, letting kids put their creative talents to work by writing stories, creating posters, or just having fun.

FINE ARTIST

Fine Artist has thousands of ways to turn your kids on to art. The program teaches basic art techniques, like adding dimension and shadows to increase realism. Yet it also comes with animated clip art and paint buckets to bring their creations to life.

McZee™ and Maggie, two characters in Fine Artist, help kids have fun while learning the program's basics; soon, they'll be creating animated pictures, buttons, stickers, posters, comic strips, and anything else they can think up.

The CD-ROM version, new this holiday season, is exploding with creative inspiration. With 600 pieces of clip-art, 300 sounds, and dozens of starter backgrounds, your kids will be proud of what they can create
Available on floppy disk and CD-ROM for Windows® and Macintosh®.

"HOW THE LEOPARD GOT HIS SPOTS"

PJ Rabbit takes children into the informative and imaginative world of Rudyard Kipling's captivating story, "How the Leopard Got His Spots." Narrated by Danny Glover, children at all reading levels can improve their reading skills by having the option of clicking on words to hear them pronounced and in some cases defined

There are dozens of magical surprises waiting to be discovered. Children explore and find animals that suddenly come alive with the simple click of the mouse. Plus, there are four games included, like Mancala, the classic African stone game, offering hours and hours of additional fun. For children 4-9 years old
Coming soon on CD-ROM for Windows

SCHOLASTIC'S THE MAGIC SCHOOL BUS: Explores the Human Body and Explores the Solar System

Starting this fall, kids will meet Scholastic's The Magic School Bus™ gang on PBS. And while their imaginations are fired up, they can enjoy hands-on Magic School Bus excitement with two new multimedia CD-ROM titles from Microsoft Home, inspired by the best-selling Scholastic books

Join Ms. Frizzle and the class on a wacky trip into...Arnold's body. Along the way, you'll explore how the human body works as you discover a way out of Arnold and win the game! Or take an interplanetary adventure as you blast off into the solar system. Ms. Frizzle gets lost in space! It's your mission to collect clues, discover the secrets of the solar system, and find the Friz to win the game!
Available on CD-ROM for Windows.

CREATIVE WRITER

Unlock your kids' natural creativity! Creative Writer is a creative writing program that lets kids write and print stories, newsletters, banners, posters, and much more. If writer's block sets in, kids can head for the Paint Buckets to bring their creations to life.

McZee™ — a creativity booster with 8,000 ideas for new stories.

Special lettering effects add color, shapes, and shadows to words; spell checkers can cut back on mistakes — its can an Undo feature, which will undo mistakes as far back as 20 steps. Kids can illustrate stories and projects with clipart, or add sounds to their creations. The CD-ROM version, new this holiday season, adds Author Inspirations, even more creativity projects to jump-start kids' imaginations! *Available on floppy disk and CD-ROM for Windows and Macintosh.*

EXPLORAPEDIA

Microsoft Explorapedia™, the children's interactive encyclopedia series, engages a child's sense of imagination and fun. The first in the series, "The World of Nature," and "The World of People," make learning and exploration fun and engaging. Kids can use it for schoolwork, or have fun browsing and exploring to help develop creative writing and thinking skills, as well as develop early reference skills

On each disk, up to 200 topics are brought to life through a wide range of rich multimedia, including video, animation, and sound, so the fun of learning just keeps coming.

For early readers, there's the option of full text narration. And for older kids, there's the ability to explore topics in greater depth with "find" and "see also" reference features
Coming soon on CD-ROM for Windows.

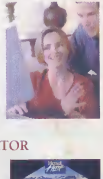
GAHAN WILSON'S THE ULTIMATE HAUNTED HOUSE GAME

Gahan Wilson, the master of the macabre, has created this most unusual house. Inside, you're trapped and you must visit the 13 rooms of the house in your quest to find the 13 missing keys before time runs out.

Along the way, you'll meet a cast of characters, some who will help you, others who can trick you! Visit the animals in the menagerie, but heed the warning and don't feed the fish! Try cooking up a ghastly stew in the kitchen or play a most unusual organ in the music room.

Since the house is haunted, the game never plays the same way twice. For children ages 8 and up
Available on CD-ROM for Windows and Macintosh

Multimedia Software Everyone Will Enjoy!



Multimedia is a whole new world for your household to explore. Sure, you're still working with a computer. But the computer will slowly melt away into the background as the screen comes to life in new and enjoyable ways.

MICROSOFT ENCARTA

Award-winning Microsoft Encarta brings information alive. Find facts, enjoy browsing and exploring, or create exciting reports with Encarta.

Updated annually by Encarta's editorial staff, working with authorities in every field, Encarta '95 offers more than 26,000 fully updated articles. The unique Pinpointer search tool finds the information you need quickly and easily. Narrow your search for any fact by defining criteria such as word, time, place, category or media. InterActivities offer a fun new way to learn and explore.

More than 100 videos and animations bring historical footage and intriguing scientific demonstrations to your computer screen. An amazing nine hours of sound — everything from animal cries to symphonies.

Microsoft Encarta is a visual treasure trove with more than 8,000 photos, illustrations and tables, and 800 colorful maps.

Available on CD-ROM for Windows and Macintosh

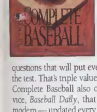
MICROSOFT BOOKSHELF '94

Microsoft Bookshelf® '94 includes new or updated versions of *The American Heritage Dictionary, The Original Roget's Thesaurus, The Columbia Dictionary of Quotations, The Concise Columbia Encyclopedia, Hammond Intermediate World Atlas, The People's Chronology, and The World Almanac® and Book of Facts 1994.*

Bookshelf '94 CD-ROM reference library brings reference material to life — complete with more than 60 animation and video clips of historic events; more than 80,000 spoken pronunciations, 40 audio clips of John F. Kennedy, Dylan Thomas and others, and more than 160 national anthems. You'll also find 230 flags and more than 160 maps. And automatic links quickly take you to related topics throughout Bookshelf '94.

Available on CD-ROM for Windows

MICROSOFT COMPLETE BASEBALL



For starters, Complete Baseball, an official publication of Major League Baseball, gives you comprehensive statistics for every player who ever made it to the big leagues. But there's more. See and hear the greatest players of all time with 9,000 images and nearly 100 audio recordings and action clips. The trivia quiz poses over 900 questions that will put even the most savvy baseball buffs to the test. That's triple value — and here comes the home run. Complete Baseball also offers an on-line subscription service, Baseball Daily, that delivers the latest stats via your modem — updated every day throughout the season.*

Available on CD-ROM for Windows.

** Available in the United States and Canada for a nominal fee*

ANCIENT LANDS

Ever been curious as to why the Egyptians wrote in such a distinctive style? What was a typical Roman diet? Ancient Lands explains it all in vivid detail. It brings the ancient civilizations of Rome, Greece and Egypt to life by exploring customs, politics, lifestyles, history and legends.

Explore on your own through more than 1,000 articles, or take a guided tour — listening to a narrator explain the hows and why's of ancient ways.

Available on CD-ROM for Windows.

DANGEROUS CREATURES

The wolves are howling — but from the safety of your computer. Dangerous Creatures brings 250 of the wildest animals of the world into your home. One hundred videos, the sounds of the wild and hundreds of photographs answer questions about the most dangerous — and endangered — animals on earth.

Your purchase helps to support the conservation efforts of the World Wildlife Fund.

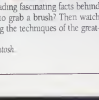
Available on CD-ROM for Windows and Macintosh.

CINEMANIA '95

Which movie to zen? Where was Jack Nicholson born? It's all here in an entertaining guide to movies and the people who make them. Our all-star cast includes Leonard Maltin, Roger Ebert, and Pauline Kael — nearly 20,000 movies covered in detail! You'll also find biographies of the stars (nearly 4,000 in all), a complete list of Academy Award® nominees and winners, hundreds of movie stills, music tracks, and dialog — even video clips for some of the all-time classics. Microsoft Cinemania® '95 interactive movie guide is a 5-star hit!

Available for Windows and Macintosh

ART GALLERY



Imagine packing your house with 2,000 masterpieces from great artists like Monet, Titian, Turner, Vermeer, Rembrandt, and others. It's possible with Art Gallery — a detailed collection of masterpieces from the national gallery in London, one of the world's finest collections. Take a guided tour to see the highlights or feel free to browse, reading fascinating facts behind hundreds of paintings. Ready to grab a brush? Then watch the animated segments showing the techniques of the greatest artists.

Available for Windows and Macintosh.

FLIGHT SIMULATOR

You're cleared for takeoff and ready for the wild blue yonder with Microsoft Flight Simulator® Take control of a photo-realistic instrument panel. Cruise over the 3-dimensional satellite-based scenery and see lifelike colors and nighttime lights across the countryside. Test piloting ability by completing a Flight Challenge. With the Scenery Add-ons you can soar from the skyscrapers of New York and the lights of Paris to the tropical shores of the Caribbean and the beauty of Japan's Mount Fuji. Escape to a new world — at home!

Available for MS-DOS, Look for Version 4 for the Macintosh.

SPACE SIMULATOR

Space Simulator is your passport to the galaxy, showing you the multitude of stars, planets, comets and other celestial objects that compose our universe. Take your pick from a fleet of spacecraft, including the Lunar Lander, Space Shuttle, and a Manned Maneuvering Unit, or see the sights through the full featured Observatory. Stunning, photo-realistic graphics and accurate planetary movement and gravitational forces make interstellar journey come to life.

Available for MS-DOS

MICROSOFT GOLF 2.0

Microsoft Golf 2.0 is the most realistic golf simulator for Windows. Play the famous Firestone County Club in rich photorealistic graphics, with its blowing winds and churping birds, without reserving a tee time. For the real competitors at heart, record your games and send them to your friends to play against, or review how you're playing with Golf 2.0 up-to-the-hole statistics.

Version 2.0 available on floppy disk for Windows

Version 1.0 available on CD-ROM for Windows

Make Your Life Easier

Today, computers and entertainment go hand-in-hand. But don't forget the original reason they entered your homes — to organize lives, increase productivity, and help you communicate better.

MICROSOFT MONEY

Nobody really likes organizing their finances — so Microsoft Money makes it a little easier. Use it to easily access your financial information, manage accounts, print checks, prepare tax information, track expenses against a budget, Bank-On-Line* and much more

Built-in financial wizards help you with retirement planning, comparing mortgages, evaluating loans, and choosing the right savings options. Charts and graphics help display your finances in an easy-to-read manner, while Cue Cards, AutoBudget and a host of other features get you on the road financial organization quickly. And now get a special offer on Reuters Money Network

Available for Windows

**Bank-On-Line services are available for a monthly fee from participating banks.*

MICROSOFT PUBLISHER

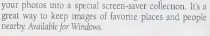
You don't need any design experience to get great-looking results with Microsoft Publisher — the world's best-selling desktop publishing application. That's because Microsoft Publisher simplifies every aspect of the design process, and makes it fun to get the results you want. Now get the power to create high-quality newsletters, brochures, flyers, banners, greeting cards, invitations, and more in a few easy steps. And for additional clipart, templates, and fonts try one of the Publisher Design Packs

Available for Windows on floppy disk and special CD-ROM including the Special Occasions Design Pack and other extra values.

MICROSOFT SCENES SCREEN SAVERS

Save your monitor from burn-in and yourself from burnout with the Microsoft Scenes collection for Windows. Scenes bring new life to your PC. With seven Scenes Collections available, you can experience everything from the Stealth Bomber to 3-D stereograms to the most stunning spots in nature — right on your PC.

Scenes also brings you a new way to personalize your PC with your own photos! That's right — you can turn your photos into a special screen-saver collection. It's a great way to keep images of favorite places and people nearby. *Available for Windows.*



MICROSOFT WORKS

Microsoft Works combines the most important productivity tools with common sense ease-of-use so you can get your computing tasks done quickly and easily.

Everything's there. A word processor for writing letters and reports, a spreadsheet for monitoring finances, a database for tracking household inventories, and more. And since all the programs work together, they can all share the same information and commands

Available for MS-DOS, Macintosh and Windows

MICROSOFT HOME MOUSE

Get your hands on the new Microsoft Home Mouse. It's specially designed to fit any type of hand — large or small, left or right. Which means everybody will enjoy using it.

And the Microsoft Home Mouse comes with the Home Editions of IntelliPoint software that lets you personalize your computer with animation, that accompanies mouse clicks. For example, point with a plane and see a toucan when you click!

Available for Windows

Here's a good idea!

With the Microsoft Home "CD Sampler" you can preview over 55 different Microsoft Home software titles before you buy. It sells for around $4.95; with it you get a $10 rebate coupon good toward your next Microsoft Home software purchase. Stop by your local software retailer, or call Microsoft at 800-228-6224, dept VXF for details.

FLY WITH US.

Buy two or more **Microsoft® Home** products *and* a **Compaq Presario** and qualify to receive a coupon for two free Delta Air Lines Companion Tickets, plus a free Travel & Adventure Kit ($500 value). OR Buy two or more **Microsoft Home** products *or* a **Compaq Presario** and qualify to receive a coupon for a free Delta Air Lines Companion Ticket.*

DELTA AIR LINES

COMPAQ PRESARIO

Microsoft Home

* Buy two or more Microsoft Home products for Microsoft Works or Microsoft Publisher AND a Compaq Presario PC between October 15, 1994 and January 15, 1995 and qualify for two free companion travel certificates from Delta Air Lines and a Travel & Adventure Kit. OR Buy two or more Microsoft Home products for Microsoft Works or Microsoft Publisher or a Compaq Presario between October 15, 1994 and January 15, 1995 and qualify for a free Companion Travel certificate from Delta Air Lines. Just submit your original coupon (available at your participating retailer) and a copy of your purchase receipt by February 15, 1995 to "My With Us", P.O. Box 3306, Peachtree City, GA 30269-7306. There will be a $10.00 processing fee per companion travel certificate. Checks and money orders only, please. Allow two to three weeks for delivery. Certificates may be used only with the purchase of a round-trip ticket issued at any applicable published Domestic fare of $359.00 or higher, or with the purchase of a round-trip ticket issued at any applicable published International full business (C class) or economy (Y class) fare. Domestic destinations include the 48 contiguous United States, Alaska, Hawaii, Canada, Mexico, Bermuda, Nassau, San Juan, St. Thomas, and St. Croix. All travel must originate in the United States on Delta Air Lines or Delta Connection Carriers. Tickets must be purchased by midnight, March 31, 1995 and all travel must commence on or after November 1, 1994 and be completed on or before June 1, 1995 for International travel, and on or before July 1, 1995 for Domestic travel. Travel is not permitted November 23, 1994 through November 29, 1994 and December 15, 1994 through January 3, 1995. This certificate may not be used retroactively for any previously issued ticket and is not combinable with any other air travel certificate. Limit 3 certificates per household or organization.

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Techno Holidays

Who Needs Lamp-Shade Dancing?

Party Favors

You've worked hard for 12 months, and you know you're due for a year-end treat at the office party. Beyond a fat bonus, you want something thoughtful, something fun.

Enough already! Map your escape route with Rand McNally's **TripMaker**. And use **Taxi** to pinpoint good food and fun.

Who makes those wobbly, booming training tapes? Zelos's **Shoot Video Like a Pro** CD-ROM will aid your office's Scorsese wanna-be.

Smoke Santa's sleigh with Kesmai's **SVGA Air Warrior** flight simulator. Or log on to GEnie and find other weekend von Richthofens.

Mail-merge personalized thank-you notes! Signature Software's **Personal Font** reproduces your handwriting, right down to the scrawled signature.

New Year's is homing in fast. That means it's time to get those finances in order. Wrap up **Quicken Deluxe 4 for Windows CD-ROM** for the bill-payer in your life.

It's just a few weeks before the holidays, and your budget is getting tight. Then, POW! They decide to nominate Secret Santas at work. You know the game: Everyone draws a name from the hat. You buy a gift for the name you draw. Nobody knows who's buying what for whom. It's a big secret—except that everyone finds out who gave the trinket that came in the cereal box.

Your budget may be tiny, but your eyes are big. What will you receive? What will you give? You can't duplicate last year's gift gaffe—Bill in sales wouldn't talk to you for weeks. You don't want your recipient to pass the gift on to the garbageman, but you don't want to give your paycheck to the credit card company either. The order of the day: a small, useful (or at least fun-filled) gift that's stamped with a long shelf life. Maybe something to use at work *and* at home—even though it's useful, it still can be fun.

And some poor sucker out there has to buy a gift for you. If you sense that someone is trying to get ideas without asking you what you want outright, start dropping hints.

Personal Font / Signature Software / (800) 925-8840 / $99.95 est. street price / *Reader Service No. 854*

Quicken Deluxe 4 for Windows CD-ROM / Intuit / (800) 986-4100 / $59.99 est. street price / *Reader Service No. 855*

Shoot Video Like a Pro / Zelos / (800) 345-6777 / $49.95 est. street price / *Reader Service No. 856*

SVGA Air Warrior / Kesmai / (800) 428-3835 / $50 est. street price / *Reader Service No. 857*

Taxi / News Electronic Data / (800) 439-6284 / $79.95 est. street price / *Reader Service No. 858*

TripMaker / Rand McNally / (800) 627-2897 / $59.95 est. street price / *Reader Service No. 859*

The New **Addition**

The scariest three words on December 24? "Some assembly required." If you're bringing a PC home for the holidays, you'll want it up and running before the snow melts. And if you thought a Mac was the best PC for a hassle-free holiday, Santa's got a real surprise for you this year.

"The system was a breeze to unpack. The large instruction sheet explained the assembly process easily." CAROL WRIGHT

AcerAcros 486DX2/66MHz

An easy-to-follow map simplified hardware setup and configuration.

"This is fun! But where are the batteries and the mouse pad?" FLAHERTY, CAROL & JENNIFER WRIGHT

PHOTOGRAPHS BY MARK RICHARDS

Nightmare? Well, It All Depends on Which PC You Buy

"What I like most about the computer is the easy instructions for its setup. No books to look through. Just one giant piece of paper." JENNIFER WRIGHT

Packard Bell Legend 11 CD

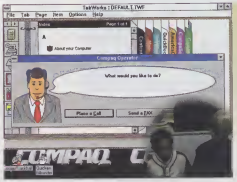
A quick assembly, except for audio. We had a few problems setting up the sound and speakers.

"I'm frustrated. I have no idea how to control the volume."
CHUCK ELVERT

Macintosh Performa 575

A confusing series of manuals complicated setup. A concise sheet of instructions would help.

"It's not like my PC at work."
CAROL LUETZ



Presario CDS 520

Th hardware was easy to unpack and configure, but the TabWorks software wasn't simple enough.

"We pretty much set it up ourselves."
JORDAN GOLSTON & JORDAN KREYCHE

PC USABILITY Tested

"Follow the directions." How many times did you hear that sage advice from your parents when you were growing up? The years have passed, but the dictum holds true. Parents read instruction books, while kids barrel on through. Our usability test of four family-oriented PCs showed that some vendors effectively cater to both impulses.

We brought in four families to set up these systems straight out of their boxes. Neither the parents nor the children had extensive PC experience, so it was no surprise that our experiment usually had the parents running to the manuals. (Maybe today's teens and prepubescents are too familiar with technology to be overwhelmed by something as easy as a PC.)

Surprisingly, the Mac was not the easiest system to use. It lacked a single sheet of setup instructions like the Packard Bell and Acer models, and an office PC user in our group had trouble deciphering its interface. Then again, Compaq's TabWorks software didn't impress our testers either.

Still, most families had the systems up and running in a half-hour. Vendors have obviously done some usability testing, too.

AcerAcros 486DX2/66MHz / Acer Corp. / (800) 733-2237 / $1,999 est. street price / *Reader Service No. 860*

Macintosh Performa 575 / Apple Computer Corp. / (800) 776-2333 / $TK est. street price / *Reader Service No. 861*

Packard Bell Legend 11 CD / Packard Bell Electronics / (800) 733-5858 / $1,899 est. street price / *Reader Service No. 862*

Presario CDS 520 / Compaq Computer Corp. / (800) 345-1518 / $1,699 est. street price / *Reader Service No. 863*

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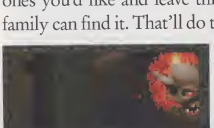
Circle 220 on reader service card.

CD-RONWhite

You Sleigh Me

Ho, ho, ho! CD-Santa knows what all of you good boys and girls want for Christmas. *Toys!* And CD-Santa has got sackfuls to break through the traditional stupor that follows a festive dinner. Circle the ones you'd like and leave this magazine open where your family can find it. That'll do the trick.



'Tis the Season . . . but don't let that keep you from playing Doom.

DOOM II: HELL ON EARTH ●●●●●

Enter the Season of Goodwill in style this year by destroying the denizens of darkness in Doom II: Hell on Earth, the sequel to this year's runaway hit shareware game. This commercially released DOS CD picks up the battle you started on another planet and moves the scene to the underworld, where you blow away assorted demon meanies. There are more levels, more baddies, and more weapons than ever before. Presented in a virtual-reality 3-D format that you've got to see to believe (and take Dramamine to endure), this death fest turns political correctness on its head, provides enough violence to engender nightmares in most youngsters, and keeps you away from the family all evening. What more could you ask for on Christmas?

Doom II: Hell on Earth / GT Interactive / (800) 362-9430, (212) 951-3000 / $49.95 est. street price / *Reader Service No. 865*

OUTPOST ●●●●●

Crave a thinking person's game that requires more than just hand-eye coordination to ensure survival? Forget Doom. Windows-based Outpost is the answer. Engage your mind and leadership skills as you lead a band of interstellar pioneers who escape Earth before it's destroyed by an asteroid. You have tough decisions to make now that you're in charge: How many people do you take? What type of supplies should they bring along? Where's the best place to land? How do you build an infrastructure that will ensure the species' survival? Outpost's high-resolution animations and realistic graphics draw you in completely. Before long, you're a cross between Moses and the mayor of SimCity. Now there's a festive thought.

Outpost / Sierra On-Line / (800) 757-7707, (206) 649-9800 / $59.95 est. street price / *Reader Service No. 866*

The End of the World . . . is just the beginning of your trials in Outpost.

CORRIDOR 7 ●●●●

Corridor 7 and its evil twin, Operation Body Count, both use the 3-D technology that was found in 1992's MVP finalist Wolfenstein 3-D and later improved on for Doom. That means the sense of reality is not as great as in Doom, but there's still plenty of shoot-'em-up action on more than 40 levels in each of the DOS games. The plots are . . . well, who cares? The point is that you get to blow away a lot of bad-guy extraterrestrials. If the two Dooms on their own didn't turn you into a natural-born killer, these should push you over the edge.

Corridor 7 / Operation Body Count / Capstone Entertainment Software / (800) 468-7228 / $39 est. street price each / *Reader Service No. 867*

THE C.H.A.O.S. CONTINUUM ●●●●

Another alternative to bloodletting is The C.H.A.O.S. Continuum, an imaginative one-player science-fiction adventure. Here's the setup: You're working at a computer that's being tapped through another dimension by scientists in the year 2577. These scientists are being held prisoner by an all-powerful computer in orbit around one of Jupiter's moons. Your mission is to rescue the white coats by using your PC to steer a robot around the orbiting computer. The well-done graphics and animations, strong storytelling, and convincing interface make it darn good play.

The C.H.A.O.S. Continuum / Creative Multimedia / (800) 262-7666, (503) 241-4351 / $39.95 est. street price / *Reader Service No. 868*

INCA II ●●●●

Once you get past its bizarre premise, Inca II is challenging on all levels. Imagine this: The lost Incan civilization is battling a number of evil galactic conquistadors in space while trying to

●●●●● *"God bless us, every one!"* ●●●● *A Christmas goose.* ●●● *Ghost of what might have been.* ●● *Not even a ghost of a chance.* ● *"Bah! Humbug!"*

PHOTOGRAPH BY JAMES McGOON

stabilize its government *and* counter a threat from a mysterious meteor.

You're the offspring of the Incan ruler, and you spend half your time solving adventure-style riddles and the other half flying a stone—yes, stone—spaceship to battle the villains. Woven between these levels of gaming is a soap-opera mystery in which you're ticked off at your father. Better yet, this is one of the few CDs that successfully blends video and other multimedia effects into the action.

Inca II / Sierra On-Line / (800) 757-7707, (206) 649-9800 / $29.95 est. street price / *Reader Service No. 869*

LEISURE SUIT LARRY 6: SHAPE UP OR SLIP OUT ○○○

Not all games appeal to the brain or the trigger finger—there are other parts of the anatomy. The sixth Leisure Suit Larry game has perennial nebbish Larry still trying to make out in a world that considers him the score of last resort. Unlike previous Larry games, he speaks in this DOS and Windows CD (and sounds as dippy as you'd imagined). In all other respects, it's Larry as usual. The opening sequence—a satire of dating-game TV shows—is a riot. But I didn't make it much past that. The first puzzle of the game makes it too hard to pry Larry away from an attractive hotel clerk and into a room (by himself, as usual). My friends who have made it past first base, so to speak, tell me it's great fun. But they're probably just bragging.

Leisure Suit Larry 6: Shape Up or Slip Out / Sierra On-Line / (800) 757-7707, (206) 649-9800 / $59.95 est. street price / *Reader Service No. 870*

WHERE IN THE WORLD IS CARMEN SANDIEGO? CD-ROM ○○○○○

Who in the world hasn't heard of Carmen Sandiego? As kids track evil Carmen's thieving henchmen, the game (like its spin-off PBS show) sneaks in geography lessons so cunningly that children don't realize they're learning geography, deductive reasoning, and multiculturalism until it's too late—two points to the wily parent! The game makes better use of Windows' interface than most business applications, and

What in the World? Carmen Sandiego practices guerrilla geography teaching.

this new version adds more countries, more photographs, more clues, and more animated characters—all to a soundtrack of the world's folk music. Buy this one for your kids early, so you'll have a chance to play it yourself before you wrap it.

Where in the World Is Carmen Sandiego? CD-ROM / Broderbund / (800) 521-6263, (415) 382-4600 / $50 est. street price / *Reader Service No. 871*

MARIO IS MISSING CD-ROM DELUXE ○○○

The main trouble with giving a kid this title is that the tyke will think it's a run-and-jump action game like its Nintendo predecessor. Actually, it's much closer to Carmen Sandiego than anything in a video game arcade—though the DOS interface isn't as much fun. Mario is missing (as if you couldn't guess), and to find him you have to lead his brother, Luigi, to different landmarks around the world in order to return valuable artifacts to their rightful places. But if you're wondering why one of the Mario Brothers has Mario for a first name, don't expect any explanations. He may be Mario Mario, but nobody's letting on.

Mario Is Missing CD-ROM Deluxe / Mindscape / (800) 234-3088, (415) 883-3000 / $36 est. street price / *Reader Service No. 872*

RALLO GUMP ○○○

Where's Tom Hanks running at lightning speed? Not here. Wrong Gump. But there's plenty of running and jumping going on nonetheless. I don't understand the appeal of these Mario-style arcade games myself, but every kid under 12 seems to be hooked. They'll probably go ape over the more than 100 levels in this game. Just don't look over their shoulders: The excellent blending of color and wild illustrations is enough to draw in adults, too.

Rallo Gump / Just SoftWorks / (708) 257-7616 / $30 est. street price / *Reader Service No. 873*

THE LIVING BOOKS SERIES ○○○○○

Any time you see a crowd of editors at *PC Computing* standing around a PC and laughing, it's a good chance that a Living Book CD is playing. They're supposed to be for small children, but like *Sesame Street*, they're for everybody. Of the four latest discs, two are based on well-known children's books: Little Monster at School by Mercer Mayer and Arthur's Birthday by Marc Brown. The other two are Living Books originals: Ruff's Bone by Colossal Pictures (which produces animations for MTV) and Harry and the Haunted House by Mark Schlichting (the mastermind behind Living Books).

Each disc carries on the winning formula behind the first Living Book, Just Grandma and Me. You page through an illustrated kid's story told in Spanish or English and click on everything in sight. Hilarious animations pop up at almost every click: A periscope pops out of a cereal bowl, a lunch box sings, a bird lays down a funky bass riff, or golf balls explode (my favorite). The surprises are funny even the 20th time around. Get them for your kids and yourself.

Little Monster at School / Arthur's Birthday / Ruff's Bone / Harry and the Haunted House / Living Books / (800) 521-6263, (415) 382-7818 / $40 est. street price each / *Reader Service No. 874*

Early in the morning, Mom wakes me and says, "Get up, Little Monster, it's time for school."

Click on the Bird! Wild animations lurk everywhere Little Monster goes.

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Hi, This Is Ken

The 1994 Usenix Technical Conference in Boston was lousy with smart computer people, very smart people. I don't know what parasite got into their little ant brains but they had me, a guy who writes the only really noncomputer column in a major computer magazine, give the keynote address.

Speaking of being off the subject of computers—I would like to explain why I have ant brain parasites on my mind: Several years ago, the *New York Times* wrote about this groovy parasite whose life cycle circles through sheep guts and ant brains. We know how it gets from the sheep to the ant—ants aren't as fastidious as that grasshopper/ant hype leads us to believe—but how do they get from the ant into the sheep? Sheep don't eat ants. Ah ha, that's what you think. They don't eat ants on purpose. They don't eat ants unless the ants are climbing up to the top of blades of grass and sitting there like nutty monkeys. And they don't do that, no, they don't do that, *unless* they have this parasite in their little ant brains that *makes* them *climb up to the top of blades of grass!* Cool, huh? The quotation was something like "the parasite gets in their ant brain and makes them do things no sane ant would do." You just don't expect that much wisdom and poetry from the Science Section.

Once I grasped the idea of parasites in our little ant brains making us do things that no sane ant would do, I was no longer puzzled by little things like Xerox's idea of letting you grab files from your hard drive with a fax machine. There are ideas no sane ant would have.

So, one goofy thing they did at Usenix was book a guy who rants about insect eccentricities in a computer mag, but the totally wacky thing was the last line of the whole conference, "Don't forget to change your password." They had this computer room set up for people to log on and even though these guys have privacy algorithms that make Wild Bill Clinton and the NSA trash the Constitution—they still have to change their passwords because someone might have looked over their goddamn shoulder and watched them type their personal "iluvuma!"

Parasites in your smart **LITTLE ANT BRAIN . . . PUZZLING SECURITY** *breaches . . . 'Hi, this is Ken. What's the* **ROOT PASSWORD?'**

Kevin Mitnick is called by the *New York Times* "Cyberspace's Most Wanted." (Ant brains and cyberspace, what a paper.) How does he break into enough supersecure computers to make the FBI climb tall blades of grass and sit there? Well, on the continuation page they explain one of his wily techniques: "By masquerading as a company executive in a telephone call, he frequently talks an unsuspecting company employee into giving him passwords and other information that makes it possible for him to gain entry into computers illegally."

Get it? He calls them up and asks them for the password and how to use it, and they tell him. Isn't that great? He just asks them. It saves a lot of random typing.

You would think AT&T Bell Labs computer network would be pretty safe. Ken Thompson and the kids have enough brain cells to remember passwords even harder than their spouses' birthday backwards, but about ten years ago a hacker got into one of the development systems at Bell Labs. They offed the intruder in a New York minute (by powering off the system), but were puzzled by how security was breached. They finally tracked it down to an operator in the machine room who got a phone call: "Hi, this is Ken. What's the root password?"

We have to keep fighting the government to keep our privacy, we need better and better encryption, and we have to shoot down *and* slide around any laws that weaken anyone's privacy. We have to get bigger and bigger primes and multiply them together until we're blue in the face. We need digital cell phones and scrambled cordless. *And* when someone asks us what our password is—we *have* to remember not to tell them.

Privacy is important—keep those parasites out of your little ant brain and don't do things that no sane ant would do.

PHOTOGRAPH BY JAMES McGOON. ILLUSTRATION BY GERALD FRAMPTON.

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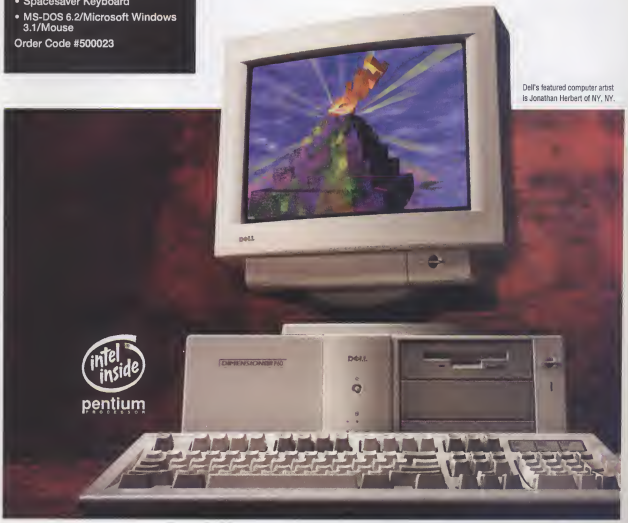

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intel inside

[1]Performance measured by running WinBench 4.0 and Torque 1.0 at 1024x768, 8-bit, 16-bit, and 32-bit per pixel modes. Performance compared to: Diamond Stealth 64 (4MB VRAM) *in the USA only for registered owners of Dell Dimension Systems purchased after 8/1/93. For a complete copy, please call our TechFax™ line at 1-800-950-1329.* products and promotions available in the U.S. only. Prices and specifications subject to change without notice. [2]On-site service provided by BancTec Service Corp. On-site service [illegible] Windows is a trademark of Microsoft Corporation. Peavey is a registered trademark of Peavey Electronics Corporation. FORTUNE 500 is a registered trademark of The Time Inc. Ma[illegible]

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